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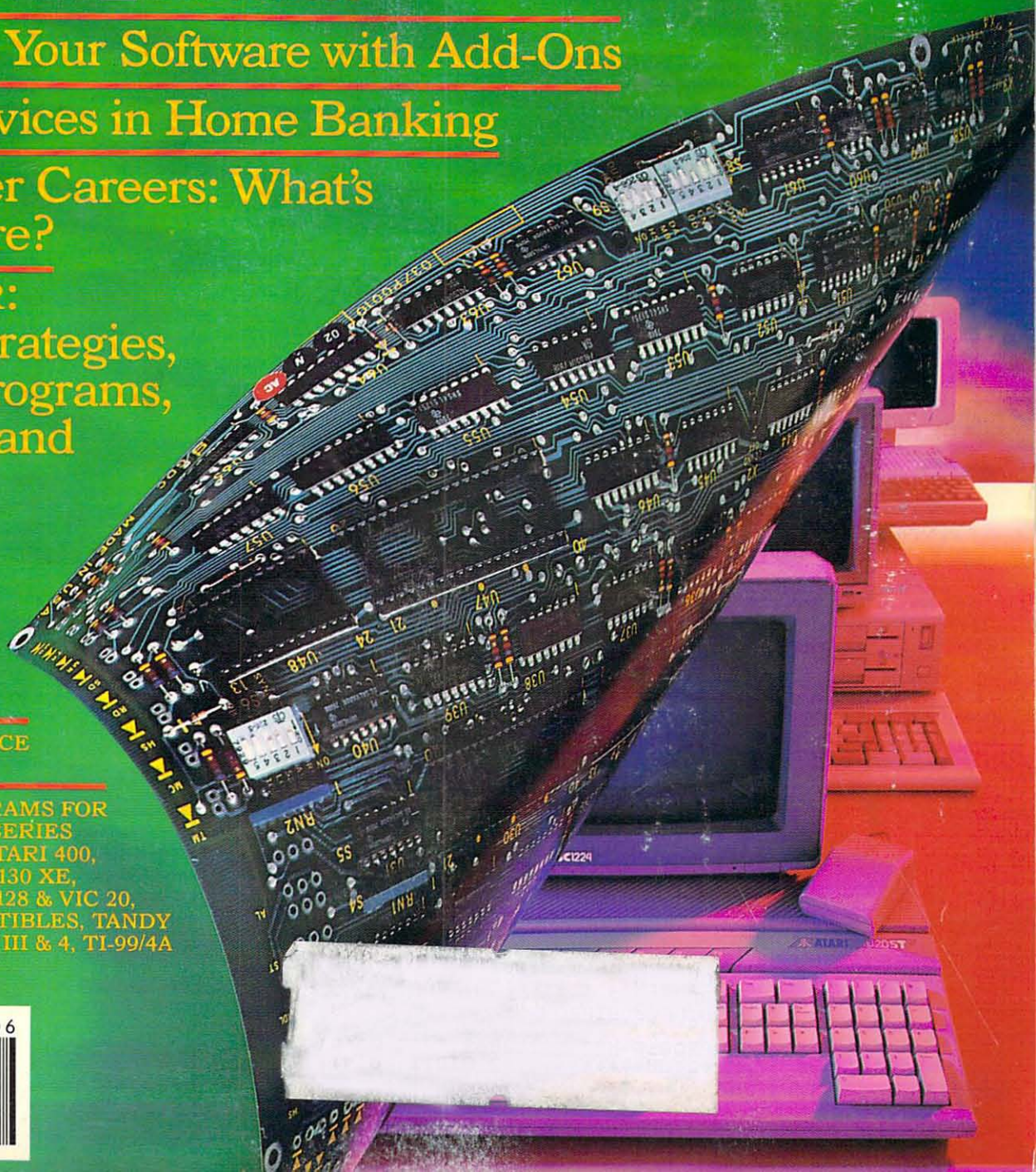
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FAMILY COMPUTING®

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*See program for specific computers covered

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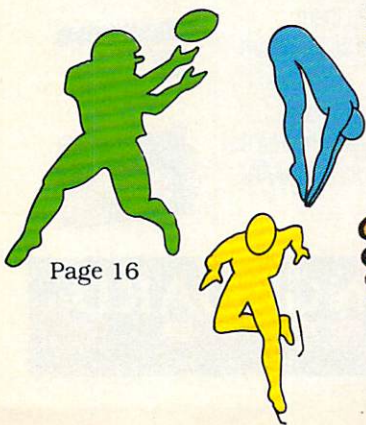
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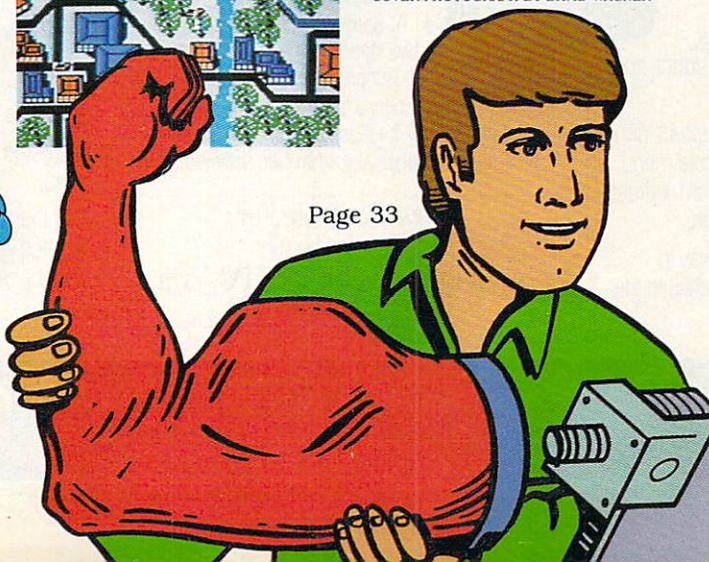
Brief reviews of 24 new and noteworthy programs.

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SPRINGBOARD



EDITOR'S NOTE

YOU'VE COME A LONG WAY

While this is our third year of publishing FAMILY COMPUTING, this issue marks our seventh buyer's guide to personal computers. During the time we've been publishing, the changes in the market and in the offerings from hardware manufacturers and software publishers have been paralleled by the growing sophistication of the consumer.

When we started, few of the people we encountered knew that prices quoted for computers usually covered only the CPU—the keyboard or system unit. Not many knew what a CPU was; or that it took more than that to constitute a working computer.

And now it's hard to believe that it was such a short time ago that so few of us realized we needed software to tell the computer what to do—that we didn't just plug it into the wall, turn it on, and somehow direct it to help us figure out three alternate budgets, or to store our favorite recipes, or to balance our checkbooks!

Today's computer buyer is savvy. Senior editor Nick Sullivan chronicles the changes in the consumer and in the goods available to purchase in our "Buyer's Guide to Personal Computers" (page 27). His run-down of the most popular computer models on the market, background material on each manufacturer, and an assessment of each machine's strengths and weaknesses give you a good start on matching your needs against each computer until you narrow down your options and finally pick the machine or system that seems best for you.

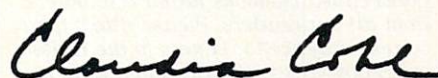
When we started all this, we were looking at computers with as little as 2K memory; 64K seemed like all anyone could ever need. In this guide, we're even talking megabytes, capacity far beyond not-long-ago

dreams. Checkbook balancing has been replaced by talk of word processing, number crunching, graphics, and telecommunications.

Still more evidence of the growing sophistication of our readers and their needs lies in the article "Secrets of Computing Compatibility" (page 42) by reviews editor David Hallerman. I'm sure that not many of our original subscribers imagined that they'd be wanting this clear explanation of ASCII files, a key to added software compatibility. If just the word ASCII (rhymes with "pass key") puts you off, don't ban it from your vocabulary. I bet if you give it a try, you'll find it easy to understand and useful in expanding your computing power.

No matter how sophisticated we become, there will always be room for the strictly human side of computing. Contributing editor Robin Raskin's article on a computer-style birthday party (page 38) will be of use to every computer-owning parent of young children. We can always count on Robin to add spice to an issue. We have a special extra for you too—a program including a computerized version of "Happy Birthday to You."

And we always count on you to add something extra to our lives. Right now we're deep in entries to our Computing Family of the Year Contest. Thank you for your hundreds of entries. I'm sure they'll inspire us to bring you lots of exciting, new ideas in the months ahead.



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CIRCLE READER SERVICE 46

LETTERS

BUYERS REACT TO BUYER'S GUIDE

I'm deeply displeased with your March 1986 issue, specifically with the "Buyer's Guide to IBM-compatible Computers." Pictured on page 27 is the Kaypro PC. I bought the magazine for a review of it, but to my dismay, no such review appeared among the others on page 29. What happened?

JOHN E. HORN
Oak Forest, IL

Since I am currently studying IBM-compatible computers and getting ready to make a purchase, I thoroughly enjoyed the March "Buyer's Guide to IBM-compatible Computers" by Phil Wiswell. The photographs on page 27 include the Kaypro PC, as does the specification list on page 26, but there is no write-up anywhere else in the article on this computer.

Your opinion will have considerable influence on my final purchase decision. Also, please advise dates of any back issues of FAMILY COMPUTING that compare the Kaypro and the Leading Edge Model "D," or discuss either computer.

CHARLES C. POWELL
Suffolk, Virginia

Editor's Note: Please refer to our Hands On Review of the Leading Edge Model "D" in the May issue.

Perhaps you should consider a continuation of the "Buyer's Guide to IBM-compatible Computers" (March 1986) to include additional machines that were not discussed in the article.

The article starts out with a good

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discussion of IBM compatibility and then seems to wander a bit. After listing some of the better compatible computers on the market, you only discuss seven of the 10 listed on page 26 (I am not counting the PCjr). What about the others, like the Kaypro?

C. HENRY DEPEW
Tallahassee, FL

Editor's Note: Traditionally, our buyer's guides have included products with the greatest national distribution and/or public interest. Our mail indicates that interest in the Kaypro PC is higher than we gauged and that it should have been included. We have ordered a Kaypro PC for review and will focus on it in future issues. In addition, watch for another article on low-cost IBM compatibles (including reviews of the Epson Equity and Kaypro) in our July feature, "Low-Cost IBM Compatibles."

COMPUTER PEACE OF MIND

How are computer companies ever going to get into the hearts and homes of Americans? Not by pushing products on unknowing buyers. What is needed is more plain-English product information geared toward the home user, not the graduate student. It's just Mr. and Mrs. Joe Citizen asking for a little computer peace of mind!

RON KRAMER
San Francisco, CA

GET ORGANIZED FOR GOOD ON THE COCO

I have been reading and recommending FAMILY COMPUTING since its beginning. You have a great magazine for families, since your articles are very interesting, easy-to-read, and give terrific suggestions for home and business computer use. I teach an adult level computer course using the Atari computer, I use Apple computers at the elementary school where I teach, and I own an Atari and a Tandy Color Computer.

While your coverage for Apple and Atari is widely diversified, I am appalled at the inadequate coverage for the Color Computer. The article "Get Organized for Good with Data-base Software," for example, has one entry for the CoCo, against many for

Apple, IBM, Atari, and C 64. Left out are *Pro-Color-File* (Derringer Software), a superior database, as well as *Elite*File* (Elite Software), *VIP Database* (VIP Technologies), *Personafile*, and *ColorFile* (Tandy Corp.).

IRENE B. LLEWELLYN
Bloomfield, CT

SOME CONSTRUCTIVE CRITICISM

I am a new subscriber to your magazine, and I find *FAMILY COMPUTING* informative and interesting. I especially like the articles on general computer information (not brand-oriented), and the list of advertisers is impressive. However, I have a little constructive criticism.

How about some utility programs and/or graphic demonstrations with sounds, etc. that really stretch the capability of a machine? If you claim that you cover all these different machines, why not provide some quality software for all of them?

Second, I am disappointed in your coverage of the Adam computer. Most of your Adam references indicate that you feel it is some kind of reject. The Adam has many capabilities which your magazine either isn't aware of or chooses to ignore. My guess is that the programmer hasn't taken the time to learn about the Adam.

I enjoy *FAMILY COMPUTING* and hope you continue to grow and prosper.

MARK S. KAVANAUGH
Merritt Island, Florida

CORRECTIONS

Readers trying to sample GENie, the computer network recently introduced by General Electric, should call modem number (800) 638-8369, and follow the on-line access instructions on page 24 of the April issue. An incorrect modem number was published.

Fahrenheit 451 is published by Telarium (a division of Spinnaker Software, One Kendall Square, Cambridge, MA 02139 [617] 494-1200), instead of CBS Software, as reported on page 12 in the April issue of *FAMILY COMPUTING*.

At press time, the Viewtron national network featured in April's Telecomputing column was scheduled to go out of service.

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HOME-SCHOOL CONNECTION

MAJORING IN COMPUTER SCIENCE

A Guide for Parents and Students Who Want Hard Facts and Figures on Computer Science Degrees

BY BERNADETTE GREY

When Tom Morton decided in the spring of his junior year that he wanted to be an accountant, his parents helped him find a college with a strong accounting program and bought him plenty of pencils with strong points.

The day Linda Buskin announced at the dinner table her intentions to be a newspaper journalist, she and her family undertook an evaluation of journalism schools across the country. Neither family was troubled with its child's career choice: math was Tom's best subject and Linda loved to write. The Mortons had few questions about accounting, and the Buskins had even fewer questions about journalism since Linda's father had been a journalist.

But what would have happened if Tom and Linda had declared their intentions to be computer systems analysts? Their parents would certainly have asked many more questions. The kids would probably have had to define "systems analyst" and explain that aspiring systems analysts and computer programmers

should usually major in computer science. Compared to familiar disciplines such as accounting and journalism, computer science is still in its infancy. As a nontraditional newcomer, it can make parents with college-bound teenagers feel uneasy, confused, and even downright frazzled. So it's perfectly understandable if you have questions about the realm of computer science. Here are some things you should know:

THE JOB

Computer science is the study of the design, construction, and use of computers. Since computers can't think for themselves, computer science majors who become programmers do the thinking for them. Programmers write detailed, sequential instructions in a programming language such as COBOL or Pascal. These programs provide the computer with steps to follow so that it will perform a specified task, such as creating a graph or making a calculation.

Programmers often get their assignments from systems analysts who design the methods that will be used to process data. For example, if

management or a customer wants a new payroll system, a systems analyst would determine how this new payroll system would work and select the hardware it would need. Once the systems analyst has designed the system, it's the programmer's job to write the program that will implement the system.

If your child chooses to major in computer science, chances are he or she will start off as a programmer and eventually move up to a systems analyst position. Of course, in a small company, a programmer and systems analyst can be one and the same, because in that situation, a systems analyst often does his or her own programming.

Warn that aspiring computer scientist in your family that there's something else he or she should know about a career as a programmer or systems analyst: it's rarely a 9-to-5 job. It's not always Monday through Friday, either. Your young computerist should expect to work some evenings and weekends once released into the working world. This reality will be discovered soon enough, as your son or daughter loses count of the number of sun-

BERNADETTE GREY IS FAMILY COMPUTING'S associate editor.

JOB GROWTH IN COMPUTER-RELATED FIELDS

(in thousands)

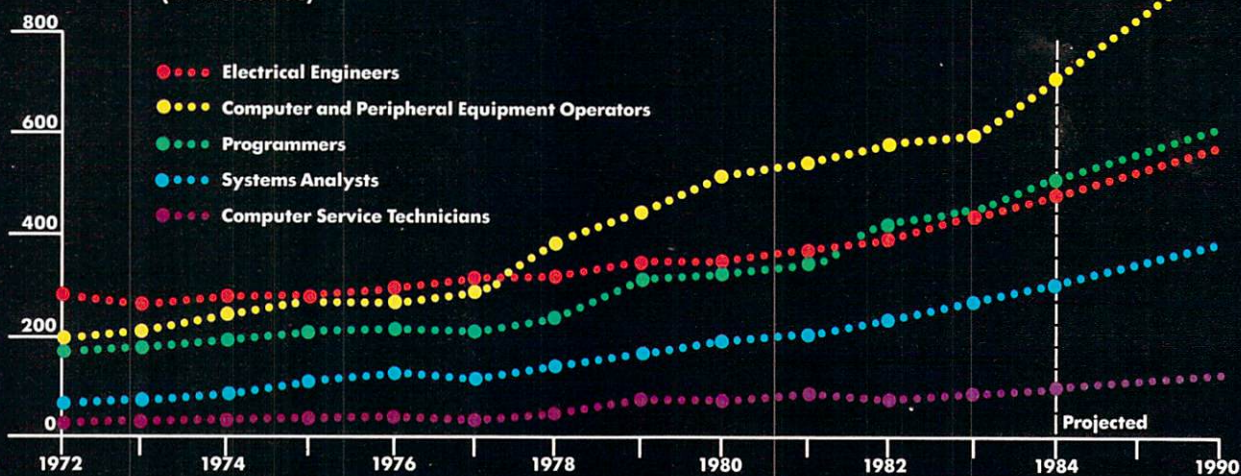


CHART BY V.B. KOTOWITZ

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CIRCLE READER SERVICE 53

HOME-SCHOOL CONNECTION

rises greeted on the way back from the computer lab. Face it. Programmers should expect to adjust their hours to a computer's availability. A systems analyst, who doesn't have to depend on a computer, stands a much better chance of working steady hours than a programmer.

THE MARKET

Now that you know what programmers and systems analysts do, you probably want to know about the job market. On many a computer room wall is a clipped-out cartoon depicting a large computer surrounded by people. Underneath the picture is the caption: "One computer can do the work of 50 people. But it takes 50 people to run it." Indeed, applications for computers have expanded dramatically over the past two decades and will continue to do so. According to the Bureau of Labor Statistics, the number of jobs in computer programming and systems analysis totalled 649,000 in 1984 and will climb to over 1.1 million jobs by 1995.

And by most accounts the job outlook remains excellent for today's young and aspiring computer scientists. Computers are still sweeping all industries, creating new jobs for computer know-it-alls. "The next twenty years will be a period of continuing explosive progress in technological jobs," wrote Robert Weinstein, in his book, *Jobs For the 21st Century* (Celler Books, 1983). "Any career having anything to do with a computer promises to be lucrative and long-lasting, and the demand factor is expected to remain strong for the next few decades and beyond."

The real clincher is that the number of students entering the realm of computer science appears to be on the downswing. There's been a significant drop in the percentage of college freshmen planning to major in computer science, according to an annual survey of college freshmen conducted by the University of California at Los Angeles and the American Council on Education. Only 4.4 percent of 1985 freshmen said they wanted to be computer programmers or analysts compared with 8.8 percent in 1983, according to the study.

THE MONEY

As you know, a short supply and strong demand drives up salaries. You may be hearing that having a

computer science degree under your belt can mean big bucks. That all depends on what you consider to be a lot of money. Don't expect your son or daughter to get six-figure salary offers—at least right off the bat. If he or she gets an offer of \$20,000, it's an offer better than most.

COMPUTER SCIENCE? IT FIGURES!

We say that the future for computer science majors is looking brighter than ever. You say: "Prove it!" Here goes.

According to the U.S. Department of Labor, Bureau of Labor Statistics:

- Of the 10 occupations projected to be the fastest growing through 1995, seven relate to computers.
- The number of computer systems analysts is projected to grow 69 percent from 1984 to 1995, adding more than 212,000 jobs.
- The need for computer programmers is expected to increase 72 percent between 1984 and 1995, or by 245,000 jobs.

• If you have a daughter, make note of this: Just 28 percent of systems analysts were female, 32 percent of programmers were female and only seven percent of computer technicians were female.

A recent survey by the National Center for Education Statistics gives a good idea of what 1980 computer and information science graduates were doing one year later.

• A whopping 97 percent of the graduates were in professional, managerial, and nonretail sales occupations, the highest proportion of all majors.

• Only three percent were in occupations which do not usually require a college degree. (By comparison, 33 percent of employed communications graduates were in jobs that do not usually require a degree.)

• Of these graduates, 86 percent were holding jobs in occupations related to their majors.

• Sixty-one percent were very satisfied with their jobs, while just 3 percent weren't satisfied at all. (By comparison, just 30 percent of art majors were satisfied with their jobs, while 19 percent were not at all.)

• Three-quarters of the graduates said they almost always or frequently use the course content of their major field, while just five percent said they rarely or never do.

We rest our case.

In Anita Gates' book, *90 Highest-Paying Careers for the '80s* (Monarch Press, 1984), the average starting salary for a programmer is \$17,200, but with experience, a computer science major can easily increase his or her salary to 40,000+ as a systems analyst. "Programmers rarely get rich," wrote Gates, "but some do better than others. You can earn more working for IBM than for the local university or bank, and earnings tend to be higher in New York or in California's Silicon Valley than they are in Jackson, Mississippi."

THE PERSONALITIES

No matter how grand you think the opportunities are in computer science, your college-bound teen may not be cut out for it. If your son or daughter doesn't really enjoy working with computers, try to steer him or her away from computer science. Would you encourage your child to be a veterinarian if he or she didn't like animals? Also, discourage your children from making a commitment to computer science if all they seem to think about is the adventure of pirating software.

Here are the personality traits of a good programmer or systems analyst: He or she should be patient, persistent, and extremely accurate, even when under pressure. Computer scientists must also have the ability to pay close attention to detail. On the other hand, they also need ingenuity and imagination.

THE EDUCATION

If your child has the makings of a good computer scientist, investigate a number of schools to ensure that he or she will get the best education possible. Although there are computer science opportunities available for those with computer training at a vocational school or at a junior college, a four-year degree in computer science will probably open the most doors. In its 1984-85 *Occupational Outlook Handbook*, the Bureau of Labor Statistics states: "The rapid growth of employment opportunities has led to substantial increases in the number of programming courses and the number of candidates for the jobs. This has caused employers to become more selective. Graduates with less education in applied fields or programming are expected to have more difficulty finding jobs than before."


To find the right college for your

teenager, seek the advice of guidance counselors, computer instructors, and experienced programmers and analysts. Your computer can help, too. There's data-base software available such as *College Directions* (Jefferson Software, [800] 468-4227; \$97-\$139) that can help students narrow down their choice of colleges. (See "College Selection Software Brings the Guidance Counselor Home," in the December 1985 *Home-School Connection*.)

THE PREPARATION

While you're looking into colleges, there are other ways to help your child prepare for a future in computer science. Does your child know any computer languages? Most high schools offer BASIC, and your teen should be familiar with it. Pascal is another programming language he or she might want to learn, particularly because the Advanced Placement test for computer science assumes knowledge of Pascal. If your child hasn't done so already and still has the time, encourage him or her to take the AP Pascal course. Also, encourage your teen to take as many math, science, and computer courses as possible at the high school level.

A number of schools require that students use computers for homework, and many offer group purchase plans. For example, Clarkson University in Potsdam, New York, requires each freshman to purchase a Zenith Z-100. Some schools that require students to bring computers to campus are: Capitol Institute of Technology in Laurel, Maryland; Indiana Institute of Technology in Fort Wayne, Indiana; and Virginia Polytechnic Institute and State University in Blacksburg, Virginia.

Finally, get your hands on everything you can about computer science degrees and careers, and evaluate the material with your college-bound son or daughter; make him or her central to the decision-making process. The local library should have a number of books on the subject, and you might even contact a couple of trade associations to obtain copies of the data and pamphlets that they distribute. Try the Association of Computer Programmers and Analysts in Kensington, Maryland, or the American Federation of Information Processing Societies in Virginia. 

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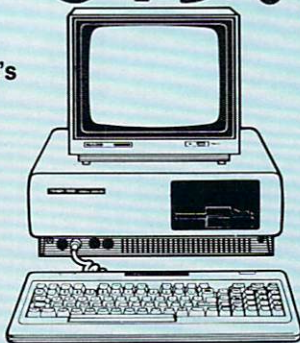
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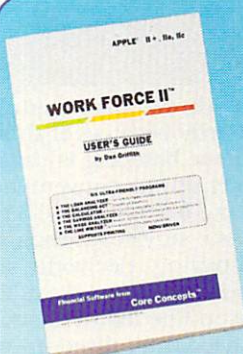
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JUNE 1986 9

HOME/MONEY MANAGEMENT

HOME BANKING ADDS REFINEMENTS

Link with Finance Software Is Latest Benefit

BY JUNE ROGOZNICA

"Home banking is for time-poor people. It gives them the ability to 'time shift.' It's particularly useful for households with two working professionals, a growing segment of the population," says Charles Forbes, vice president of Chemical Bank's Pronto USA. Chemical is one of about 30 banks across the country offering home banking services that allow computer users to view account balances, transfer funds between accounts, and pay bills without leaving home.

Many of today's 80,000 home-banking customers are baby boomers who've grown up in the age of automatic-teller machines, food processors, and computers. Others run small businesses, and need to stay on top of their balances. Both types of customers are willing to pay a price to make their lives less hectic and more organized. Take Rayma J. Tracy, 33, a mother of three in San Mateo, California, who with her husband, runs a business from home.

About twice each week, Tracy sits down at her IBM PC, turns on her modem, boots up her banking communications software, and dials a local telephone number connecting her with Bank of America's Home-Banking service. After typing her personal identification number and password, she's ready to bank online. An on-screen menu presents her with a choice of activities: BILL PAYING, FUNDS TRANSFER, BALANCE INQUIRY, ELECTRONIC STATEMENT, and ELECTRONIC MAIL.

"With home banking I can bank whenever it's convenient," she says. "It's much better than hauling the kids into the car each time I want to do a transaction." For instance, she can view balances for any one of her three different accounts—two personal and one business—and make sure that recent deposits have cleared, or see if payments have been processed. If any accounts are shy, she transfers cash to cover the checks she has to write.

Of course, Tracy can't deposit money or withdraw cash—and nei-



ther can any other home-banking customers. Partly because of this limitation, home banking is clearly not a necessity. It is a convenience, with a price tag from \$5 to \$12 per month for basic services (funds transfer, bill paying, electronic statements). If you choose to take advantage of other on-line features such as business accounts, discount brokerage and information services, you may incur additional charges.

A QUIZ TO HELP YOU DECIDE

Will you derive enough benefits from home-banking to make it worth the money? Ask yourself the following questions, and judge for yourself.

Do you have the right computer and a modem?

Home banking services—which require special software from the bank—generally work with popular models from Apple, Atari, Commodore, IBM, and Tandy (check with your bank for details). Unless you move a lot of money around, it's probably not worth buying computer equipment for home banking alone.

Is home banking offered by a bank in your area?

If not, it doesn't make too much sense to transfer your money to an institution where you can't easily make deposits and withdrawals, unless that bank offers valuable services your bank doesn't.

Does it make sense to do home banking through CompuServe or other networks?

Some small banks that don't have their own "delivery" systems can be accessed through networks such as the CompuServe system. Such services charge for connect time (banks often waive their own fee), so the monthly cost of banking will probably be relatively high.

How many times do you frequent the bank each month and for what type of transactions?

If most of your activities involve deposits or withdrawals, home banking won't reduce your number of visits to the bank. If you stop by the bank to check your balance or transfer funds, you'll save a lot of shoe leather.

JUNE ROGOZNICA is a freelance writer who lives in New York.

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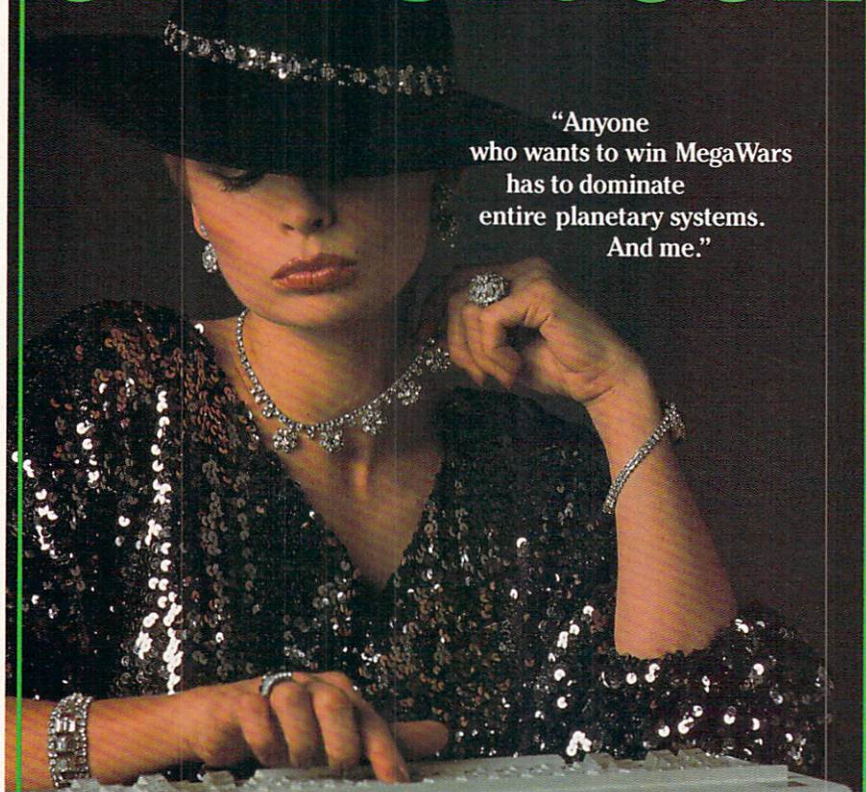
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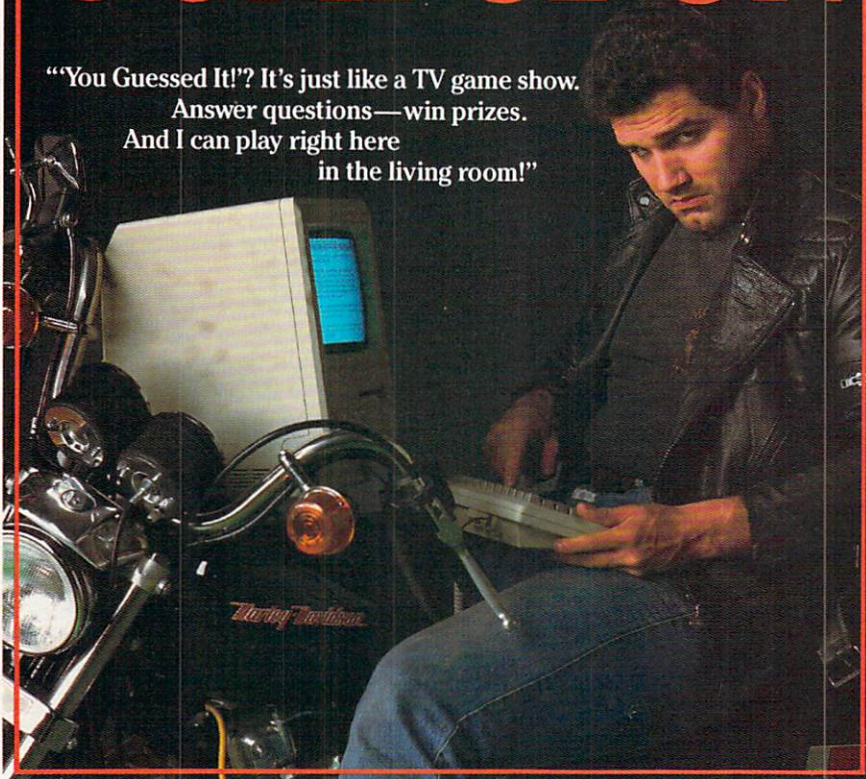
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HOME/MONEY MANAGEMENT

How many accounts do you have at your bank, and do you (or would you) shift funds between accounts to take advantage of higher interest rates?

One of the niceties of home banking is that it lets you control your money on a round-the-clock basis at the touch of a keyboard. For example, you can transfer money between your checking and money-market fund so you can get higher interest. However, if your funds are extremely limited, or if you have no interest in day-to-day money management, you won't gain much from the funds-transfer feature.

Are you a poor checkbook balancer?

With home banking, you won't have to wait until you receive your overdraft notice or your monthly statement to find out something's amiss with your finances. You can review your statements on-line each day; in most cases, your transactions through the preceding day will be recorded. You can also print out your monthly statement at any time.

How many checks do you write each month—and to whom?

Are most checks to the same creditors, such as a utility company, landlord, etc., or are many of them miscellaneous? When you subscribe to a home banking service, you're provided with a directory of retail stores, municipal services, and financial institutions that accept electronic bill payment. You can pay any of these vendors by indicating to the bank the name of the vendor you wish to pay, the date to pay, and the amount. You can preschedule bill payments one to two months or more in advance, so you keep your money until the last possible moment.

Bill paying gets slightly more complicated when you want to add creditors not listed in the directory. In most cases, you must notify the bank in advance and wait several days for the bank to notify the specific vendor to get approval.

If approved, the bank will make the payment transactions by transferring money from your account to the vendor's, or by mailing a payment. The bank guarantees receipt within two to five days. In either case, you won't have your cancelled check as proof of payment if a misunderstanding arises.

NEW! IMPROVED!

If home banking interests you, ex-

amine some of the enhancements and perks that banks are using to overcome initial customer resistance. Banks are fine-tuning existing services, crediting accounts sooner, enhancing check balancing features, and simplifying on-line menus. Some home banking providers are giving away modems and software (sometimes even computers), as well as providing reduced rates on other on-line databases, and free trial periods.

Still other banks give users access to information services such as Dow Jones News/Retrieval. Citicorp has its own discount brokerage service, which is now available on-line, and you can also manage your Citibank IRA accounts on-line.

But, perhaps home banking's most revolutionary enhancement is the integration with top-selling spreadsheets and financial management software. (See "How a Computer Can Help Your Finances," in the January Home/Money Management department.) For example, with Bank of America's HomeBanking system, users can download their banking transactions directly into *Dollars and Sense* (Monogram). Citibank's Direct Access offers more choices: *Dollars and Sense*, *Lotus 1-2-3*, *Symphony*, *VisiCalc*, and *AppleWorks*, among others. *Managing Your Money* will be ready to run with some services this fall.

If you are using or want to use a finance program to set budgets, or to keep accurate records of your spending for tax purposes, such integration makes sense. Since you have to pay bills anyway, you are killing two birds with one stone. In the past, using home banking and a financial program were two separate activities. You still had to manually type in check numbers, deposit and withdrawal amounts, credit card payments, etc. Now, it's all done automatically and quickly.

Tony Corapi, 30, an electrician who lives in New York, teamed up Citibank's Direct Access home-banking service with *Dollars and Sense*. He says it takes about 10 minutes to download transaction information from his six different accounts (including savings, checking, money market, and charge accounts) into the home-finance program. Quite naturally, the more accounts you have, the more time you'll save.

Unfortunately, to use the feature you need *MoneyLink* (\$50), a menu-driven interface that allows integra-

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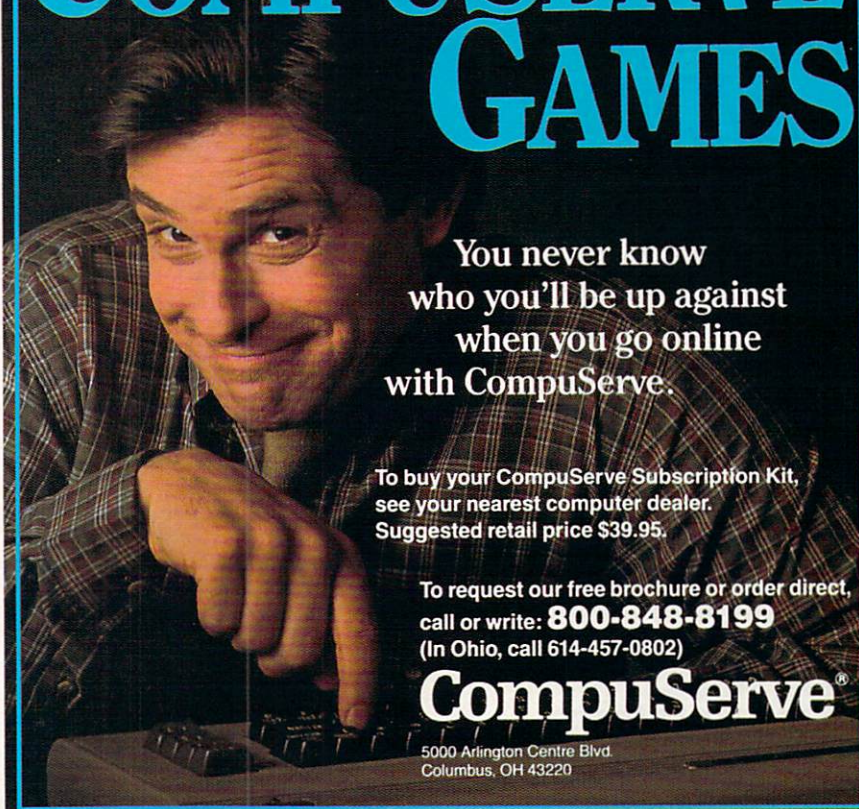
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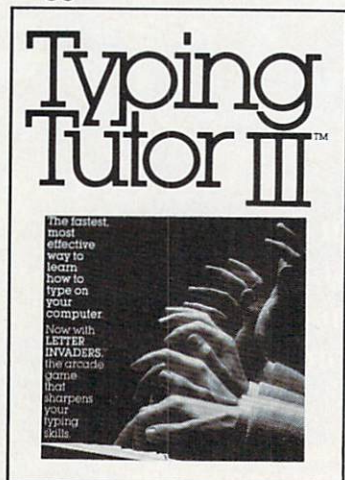
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HOME/MONEY MANAGEMENT

tion between the banking services and *Dollars and Sense*.

THUMB BEHIND THE BLADE

With an estimated 80,000 users, banks are the first to admit they have bitten off a small piece of the whole pie, as there are about 9 million computers (potential customers) in U.S. homes. Yet, it's inevitable that more banks will develop home-banking systems, or offer licensed existing systems from larger banks. Why? In the long term, it will be cheaper for banks to let customers enter data on the millions of checks written each year instead of hiring more staff and building more branches. And the people attracted to home banking are likely to be more affluent customers with more accounts.

Understandably, many banks are cautious about getting involved when the upfront costs are high and the short-term payoffs low or nonexistent. "Many banks feel when you're on the cutting edge of technology, keep your thumb behind the blade," says Gary Arlen, president of Arlen Communications, a Washington, D.C. research firm specializing in interactive services. From the customers' perspective, you might say the feeling is mutual. ☐

WHO'S WHO IN HOME BANKING

The following banks have operational home-banking services that offer bill-paying and on-line statements. Some also allow you to buy and sell stocks.

BANK OF AMERICA NT&SA, San Francisco, CA; IBM PACIFIC CREDIT UNION, San Jose, CA; SECURITY PACIFIC NATIONAL BANK (Gateway), Los Angeles, CA; UNION TRUST CO. (Pronto Personal), New Haven, CT; MADISON NATIONAL BANK, D.C.; CONTINENTAL NATIONAL BANK, Miami, FL; SOUTHEAST BANK (CompuServe), Miami, FL; FULTON FEDERAL SAVINGS & LOAN ASSN., Atlanta, GA; LOUISIANA NATIONAL BANK, Baton Rouge, LA; SHAWMUT CORP., Boston, MA; CHASE MANHATTAN BANK, New York, NY; CHEMICAL BANK (Pronto Personal), New York, NY; CITIBANK (Direct Access), New York, NY; MANUFACTURERS HANOVER TRUST CO., New York, NY; UNITED STATES TRUST CO., New York, NY; NCNB NATIONAL BANK, Charlotte, NC; BANCONE CORP., Columbus, OH; HUNTINGTON NATIONAL BANK (Banc Share), Columbus, OH; HUNTINGTON NATIONAL BANK (ExpressWire), Columbus, OH; NCR UNIVERSAL CREDIT UNION, Dayton, OH; TOLEDO TRUST CO., Toledo, OH; TRUSTCORP INC., Columbus, OH; PENN SECURITY BANK & TRUST CO., Scranton, PA; PSFS, Philadelphia, PA; ORNL CREDIT UNION, Oak Ridge, TN; UNITED AMERICAN BANK, Memphis, TN; BANK OF MONTREAL, Quebec, Canada; CONTINENTAL BANK OF CANADA, Toronto, Ontario, Canada.

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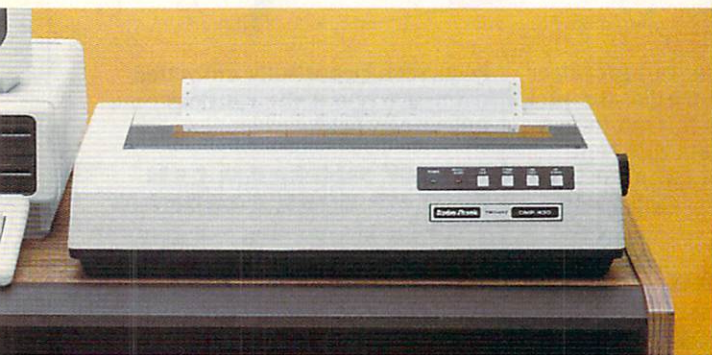
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GAMES

SPORTS SOFTWARE ROUNDUP

The Best Games For Active, Armchair Athletes

BY JAMES DELSON

Now that summer is finally here, I expect most of you will be out playing ball, swimming, and participating in your favorite sports. But if you require some active jiggling of the joystick, and a good workout for your gray matter, then you'll find a wide variety of sports games available for rainy days, evenings, or between dips in the pool.

The basic idea behind most sports software is to simulate the experience of playing an actual sport. In some games, you're the coach or manager instead of the athlete. Covering such varied activities as baseball, football, basketball, race-car driving, karate, boxing, tennis, golf, and multi-event Olympic simulations, sports programs offer the next-best thing to testing your cleats, and aren't nearly so tough on the knees.

LET THE GAMES BEGIN

Based on the summer and winter Olympic games, multi-event sports programs require fast reflexes, good timing, and often, real stamina.

Epyx has published three joystick-operated programs that cover the field for Olympic-style events—*Summer Games*, *Summer Games II*, and *Winter Games*. *Summer Games* allows one to eight players to participate in eight events, including diving, skeet shooting, swimming, and running relay races. *Summer Games II*, a sequel, is even tougher to play. It involves up to eight players in such sports as fencing, show-jumping, kayaking, and the triple jump. You can combine this sequel and the original into a grueling 16-event competition. *Winter Games*, a further spinoff, offers one to eight gamers six events: figure and free-style skating, the biathlon, "hot dog" aerial ski jumps, full ski jumps, and a bobsled run.

DRIVE, THEY SAID

Race-car simulations are among the most popular and enduring types of sports software. Recent additions have begun to feature com-

JAMES DELSON IS FAMILY COMPUTING'S games critic and a good sport.



plex construction sets, but for sheer driving pleasure and thrills, the pick of the pack is *Pitstop II*. One to two players choose from six different courses, or the entire Grand Prix circuit, using a variety of skill levels and track sizes.

TENNIS, EVERYONE

It's a good thing that the sole tennis program of note on the market today is a winner. *On-Court Tennis* is a superb simulation which allows players to set the length of a match, the type of court surface, and the computer opponent's style of play for one-person play. Every shot can be joystick-controlled for speed, angle, and direction.

HUP ONE! 39! 27! HIKE!

Consider the three excellent football games that are available: *Touch-down Football*, *On-Field Football*, and *Super Bowl Sunday*. The first two titles are fast-moving, one- or two-player simulations in which you call the shots by making joystick selections for seven-player (*Touch-down*) or four-player (*On-Field*) teams. Options include variable formations, multiple passing situations, interceptions, running, tackling, and hundreds of play combinations. Both are among the best sports programs to date.

Super Bowl Sunday is more of a strategy than an arcade/action game. Choosing from 20 past Super Bowl teams, one to two gamers plan tactics for each down of the championship game, then watch as statistical-

ly correct, beautifully animated teams carry out their orders on a full-screen field.

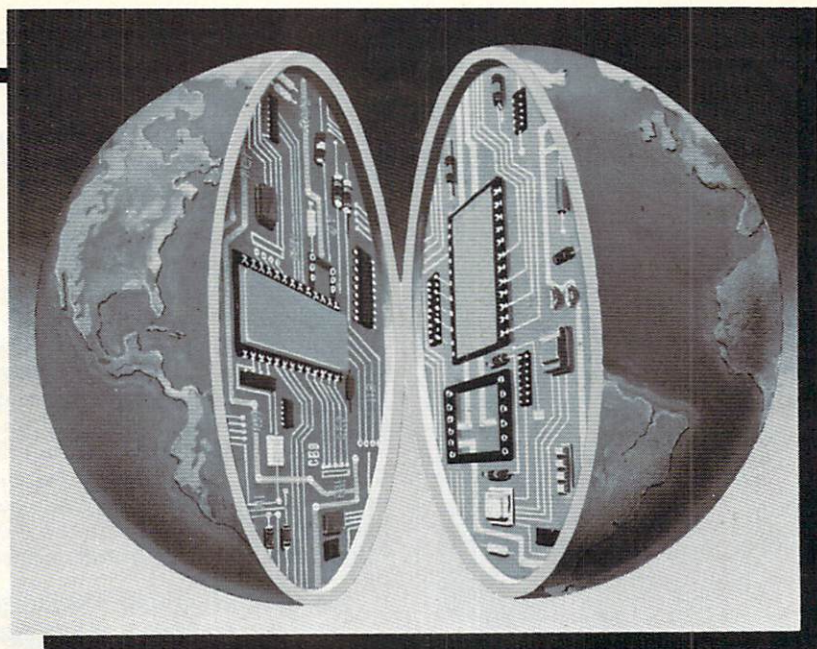
BET MY PROGRAM CAN BEAT UP YOUR PROGRAM

The fastest growing sub-genre in computer sports gaming is the fighting simulation—boxing and karate. The best of the ring, *Competition Karate*, allows gamers to create characters, then guides them through bouts against human- or computer-controlled opponents. After combat, characters grow and develop along the lines of traditional role-playing games.

The most flexible game around is *Championship Boxing*. Players can use historical fighters (Joe Louis, Muhammad Ali, etc.) or make up their own. Then they match their pugilist against a human- or computer-controlled opponent. Three types of play are available, too: gamer-controlled fighters, computer-controlled matches, or strategy-only (you "coach" your boxer).

HOOPS HEAVEN

Perhaps the reason no one has tried to market a basketball program in the past couple of years is that *Julius Erving and Larry Bird Go One-On-One* is such a superb game. The first sports software designed with the active participation of leading athletes, this one- or two-player simulation offers four play levels, a fatigue feature, incredibly lifelike graphics, and a fast-moving play system that has remained a pacesetter



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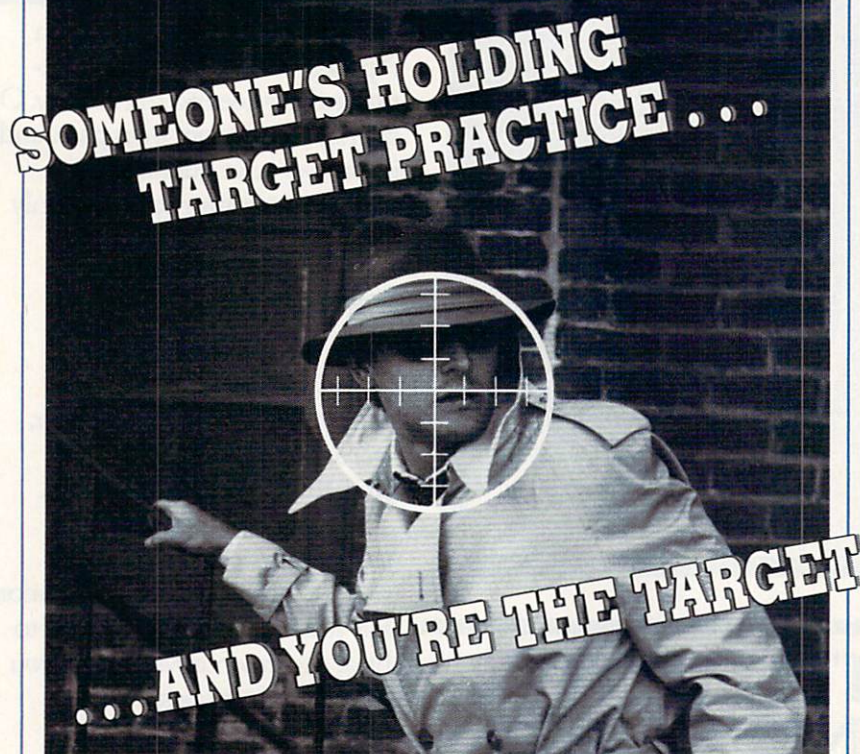
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SPORTS SOFTWARE STARTING LINEUP

- APBA Major League Players Baseball (RH).** IBM PC/PCjr. \$90.
- Championship Boxing (SON).** 128K Apple, C 64/128, IBM PC/PCjr, Macintosh. \$35.
- Championship Golf (GS).** IBM PC/PCjr. \$50.
- Championship Star League Baseball (GS).** 64K Apple, Atari, C 64/128, Macintosh. \$25-\$35.
- Competition Karate (MOT).** Apple, C 64/128. \$35.
- Golf's Best (STEP).** 64K Apple, IBM PC/PCjr. \$50.
- Hardball (ACC).** 64K Apple, C 64/128. \$30-\$35.
- Julius Erving and Larry Bird Go One-On-One (EA).** Amiga, Apple, Atari, C 64/128, IBM PC/PCjr. 512K Macintosh. \$33-\$40.
- On-Court Tennis (GS).** C 64/128. \$30.
- On-Field Football (GS).** C 64/128. \$30.
- Pitstop II (EPX).** Apple, Atari, C 64/128, IBM PC/PCjr. \$40.
- Summer Games (EPX).** Apple, Atari, C 64/128. \$40.
- Summer Games II (EPX).** 64K Apple, C 64/128. \$40.
- Super Bowl Sunday (AH).** C 64/128, IBM PC/PCjr. \$35.
- Touchdown Football (IM).** C 64/128, IBM PCjr. \$30-\$35.
- Winter Games (EPX).** 64K Apple, C 64/128, Macintosh. \$40.

COMPANY CONTACTS

ACC—Accolade, (408) 446-5757. AH—Avalon Hill, (301) 254-9200. EA—Electronic Arts, (415) 571-7171. EPX—Epyx, (408) 745-0700. GS—Gamestar, a division of Activision, (415) 960-0410. IM—Imagic, distributed by Electronic Arts, (415) 571-7171. MOT—Motivated Software, (415) 383-9005. RH—Random House, (800) 638-6460. SON—Sierra On-Line, (209) 683-6858. STEP—1 Step Software, (704) 525-6688.

Unless otherwise noted, minimum memory requirements are 48K for Apple, 48K for Atari, 128K for IBM PC/PCjr, and 128K for Macintosh. Atari refers to the 800/XL/XE series. C 64/128 means the software will run on the C 64, or the C 128 computer in C-64 mode. Titles listed for the IBM PC/PCjr will also run on many IBM PC compatibles.

tion of where your shot will land so you can learn how to play.

Championship Golf is more difficult than *Golf's Best*, but if you stick with it, there's more here than in any other golf simulation to date. This one- or two-player game offers superb 3-D graphics, a driving range where you can master all the clubs in your bag, a hint feature, and a complex play system that requires excellent timing for hitting the ball.

TAKE ME OUT TO THE BALL GAME


If you can tear yourself away from the real thing, computer baseball games are a good substitute for—and are much more active than—watching our national pastime. The best program we've played is *APBA Major League Players Baseball*, a state-of-the-art strategy game which uses statistics on every player in the majors to give you a data base from which you can build your own dream teams. Challenge other imaginary clubs or take on real ones, managing the team and watching the action.

For more active play simulation, two joystick-operated strategy/arcade games are available: *Hardball* and *Championship Star League Baseball*. The first combines statistics analysis (in which you choose teams and set strategies) with fast-paced joystick action; you pitch, hit, run bases, and field balls. In *Star League*, solo players are pitted against a tough computer opponent as they pitch, bat, field, and even pick off base runners.

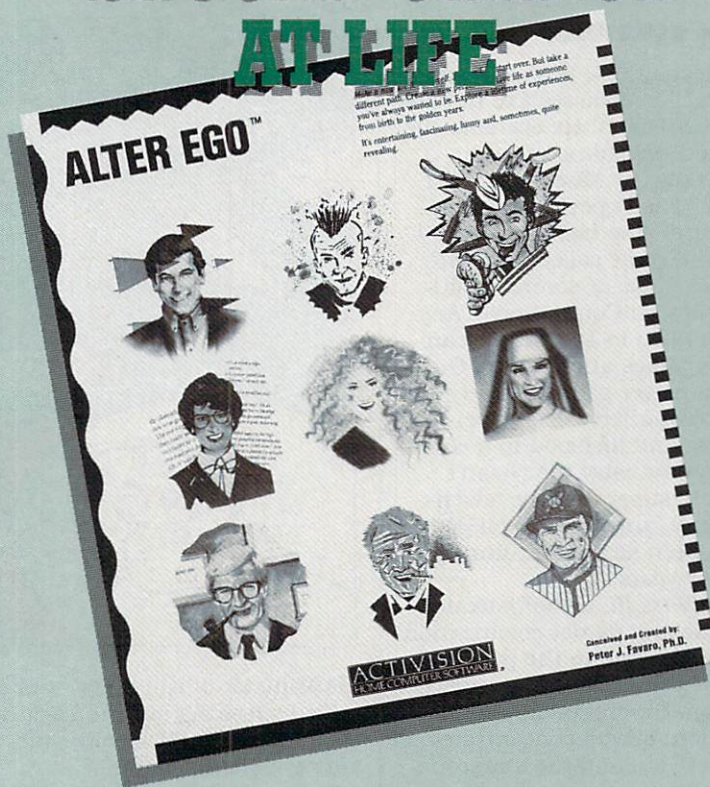
SPORTS SOFTWARE FOR LEARNING

Not all sports software packages are for play only; some offer instruction, too, such as *Avant-Garde's Dave Winfield's Batter Up!* and *Joe Theismann's Pro Football*. We'll be examining these programs and others in next month's issue.

SEE YOU ON THE PLAYING FIELDS

In preparing this piece on sports games, it became apparent that the genre is on the leading edge of gaming development. Yet the lack of new software covering such major sports as hockey, basketball, and soccer—and such minor ones as polo, lacrosse, bicycle racing, and quoits—will, we hope, be filled by newer and better programs in the coming seasons. Until then, see you on the playing fields of "joystick-dom." 

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CIRCLE READER SERVICE 4

TELECOMPUTING

MULTI-PLAYER GAMES ON COMPUSEVE

Where the Pros Play

BY NICK SULLIVAN

Chris Daldegan, 24, is a shift supervisor at Pacific Molasses Co. in New Orleans, Louisiana. He oversees the loading and unloading of cargo ships that ply the Mississippi. Off the docks he is Popeye, a ranking Fleet Admiral who has sunk 7,000 ships in the game called *SeaWAR*.

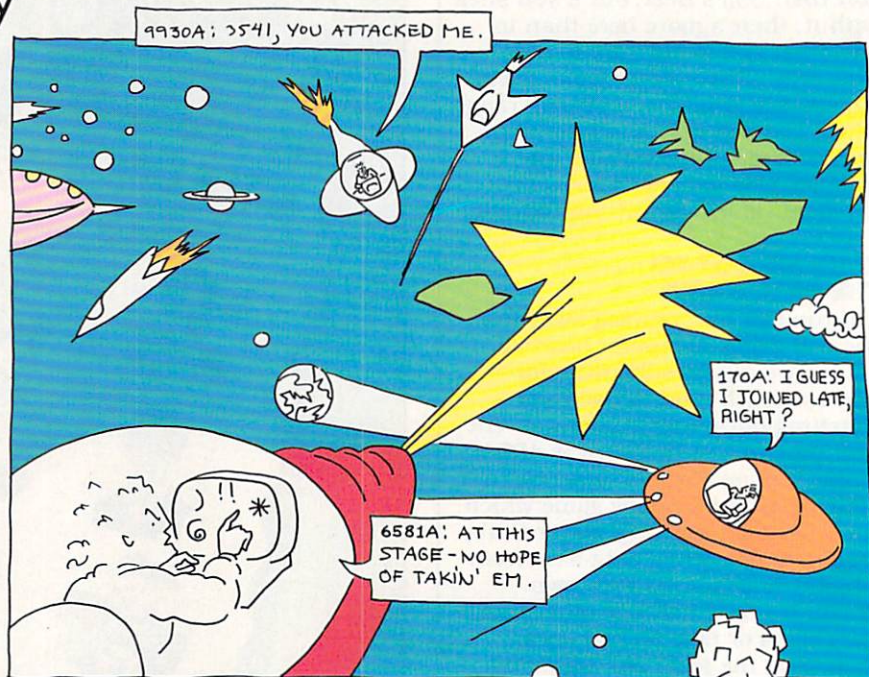
SeaWAR is one of several multi-player games on CompuServe. Anywhere from two to 100 people can play these games at one time. On-line, multi-player games—pretty much a CompuServe exclusive—add a new twist and lifeblood to a computer game industry that hasn't been able to supersede the adventure, fantasy, and simulation games that have been so popular during the last few years.

In *MegaWars III*, a sophisticated space-battle and planet colonization game, you can talk to the pilots of spaceships you see floating across your screen. Several pilots are in conversation, others concentrate on shooting at you, and the starscape keeps changing as your ship moves. What an electric sensation!

CompuServe has taken basic gaming concepts from the arcade, adventure, and fantasy genres—you're Admiral Popeye shooting up ships, say—and added thrills that only telecomputing can deliver. These include meeting a diverse group of people, open conference channels where several people can talk at once by typing on their screens, and multi-user forums full of files and messages you can read.

For instance, you can select the Gamers' Forum or the Multi-Player Games Forum, and interact with players assuming personas such as Submission, Maelstrom, Prophet, Crusader, Warrior, and Oberon. Fantasy breeds fantasy, and the role playing continues even after the game is over.

In The Electronic Gamer section, you can even read *SeaWAR Scuttlebutt*, Admiral Popeye's biweekly update about *SeaWAR* battles-in-progress, or some spirited prose from the *Galactic News Service* (Lavrenti Kutuzov reporting) on the state of the galaxy in *MegaWars III*: "Polar,



the Minister of Kindness, was observed sneaking out the back door of the Presidential Palace the morning after the inauguration . . ."

The result of CompuServe's unique blend is games that are fast-paced and social—in an environment that is fast-paced and social.

THE EMPEROR SPEAKS

"Once upon a time there was checkers and chess," says L'Eagle (short for Legal Eagle), a corporate lawyer who spends 20 or more hours a week gaming on CompuServe. L'Eagle fought in "The First MegaWar" in 1983, and has been crowned Emperor (the leader of a winning team) in *MegaWars III*. With 24 years of serious gaming under his belt, the 36-year-old (married, one child) can give some perspective on the CompuServe phenomenon.

"In the fifties, Avalon Hill started making great war games, like *Stalin-grad*, *Waterloo*, and *Diplomacy*, one of the best multi-player board games. (You can play *Diplomacy* on CompuServe, via electronic mail or The Gamers' Forum.) In the sixties, these and other board games got more complex.

"In the seventies, video and computer games came along. They're interactive, but when two people are playing, say, a Strategic Simulations war game, one person is always

tiddling his or her thumbs, waiting for the opponent to make a move. Now we have these multi-player games on CompuServe, where everyone gets an instant response."

PERSONAE DRAMATIS

The people who play are carrying a torch first lit by mad-eyed programmers who played all-night games of *Adventure* on PDP-11 minicomputers at institutions like MIT and Stanford in the fifties and sixties. (You can play several versions of *Adventure* on CompuServe.) "The players are about 20 degrees off due North," says L'Eagle. "Slightly crazy."

The ability to create—and to be part of an organism in flux—is obviously one of the great attractions of on-line, multi-player games. A game of *MegaWars III* can last for six weeks, and its complexity nearly defies explanation; the game must simply be experienced to be fully understood. As you travel through space fighting off enemies, you form teams that look for "habitable" planets to colonize. In the second half of the game, these teams develop industries and economies, and collect taxes. Naturally, the more creative, witty, and committed the players are, the more fun the game will be.

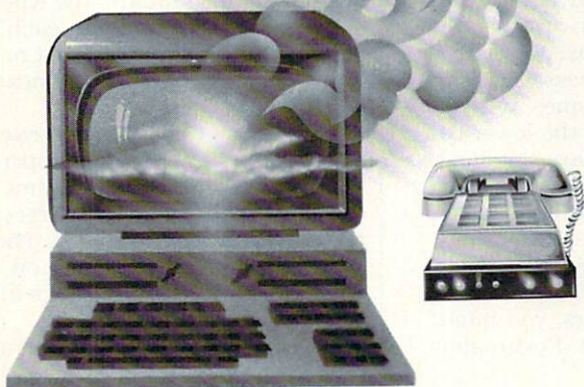
"The game has very few limitations," says L'Eagle. "That's part of the charm. But everyone has to work

NICK SULLIVAN is senior editor of FAMILY COMPUTING.

ILLUSTRATION BY MONA MARK

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The Source	X	X	no	X	X	X	\$49.95	\$10.00	\$8.40	\$10.80

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TELECOMPUTING

to keep the game good-spirited. At one point, the game's authors thought that team members would turn on one another, that friends would become enemies. But after six weeks of planning together, the last thing you would do is back-stab."

Other multi-player games are not nearly as dependent on long-term relationships. *Island of Kesmai*, a multi-player fantasy role-playing game, based on a "dungeons and dragons" scenario, is quite individualistic—you can create a character at any time and walk right into the game. Typically, a *MegaWars I* game can last two to three hours, and a *SeaWAR* game can last 15 minutes. In *You Guessed It!*—the multi-player trivia game based on the 30-minute television game show—you form teams to answer questions from host Bob Illuminati. Just like—*You Guessed It!*—television.

DOCTORS AND LAWYERS

You can buy most games on disk for about \$20 to \$50, and play them forever. If you stay up all night on CompuServe, paying up to \$12 per hour, you can spend more than that. But most on-line gamers pull down good money. "They're doctors, lawyers, dentists, computer programmers and other professionals in high-stress jobs who come on-line to relax. They probably make \$5,000 a month," says Patricia Fitzgibbons, a lawyer in Los Angeles, who's sysop of the Gamers' Forum and The Multi-Player Games Forum, where she's known as Nightshift. It was started in 1981 as a place to trade Zork tips. At that time, she was running up

\$500 monthly bills to stay in touch with other gamers.

"The average age of players is about 35," says Nightshift. "I've met a few of them in person and they're normal people. They don't go around wearing cocked hats and calling themselves 'Admiral.' For some, when they leave college, or move to a new town, CompuServe is the only place to get a game. They set up their chess boards at home, go onto a conference channel, and trade moves."

L'Eagle won't divulge the size of his CompuServe bills, saying only that they're "egregious." He uses 1200 baud to read messages in the Forums, but plays games at 300 baud to benefit from the lower connect time rates. He says the games play about the same at either speed. "You can tell when the MasterCard bills come," says L'Eagle. "People disappear. Later, they come back and say, 'Yeah, I just had to cut down a bit.' Teenagers, you might never see them again. Fortunately, I make a lot of money."

A MINI-ADVENTURE GAME

I'm not much of a gamer, unless you count ping-pong. What got me excited about multi-player games was the chit-chat going on in the Multi-Player Games Forum. I had played *Blackjack* (and won), *Othello* (lost), and *Checkers* (lost again) on other networks, and found them interesting but static—one person against a computer. Now, after reading the vibrant message boards on CompuServe, I felt like I was stranded on an island. I wanted to swim

toward the multi-player action. On my first few attempts to play, however, I hit reef.

When you first decide to play one of the multi-player games from a menu, you are generally sent to a second menu and asked to set your TERMINAL TYPE.

The idea is to use your communications software to set one terminal type, then tell CompuServe to match it. This allows your cursor to jump around and splatter graphics and text anywhere on your screen, without having to "repaint" the whole game scenario over again, each time you want to land on a planet or knock a spaceship into the next universe.

This is also called "cursor control," and it makes everything happen much faster. From time to time I saw this dire warning: CURSOR CONTROL IS HIGHLY RECOMMENDED. The problem is, I found nothing on CompuServe to explain the setup procedure. What to do?

I chose one terminal setting at random and got garbage. The screen was so hard to read I barely got out of the mess. I tried another setting and got the same results. After several days of leaving and retrieving messages without solving the problem, I met someone in conference who (miraculously) was using the same computer and software as I. Europa, as he or she was called, said: "Set the input to VT-52 and the output to Datamedia."

Don't ask me what this means. Europa didn't even know where the information had come from. Anyway, my software (*ASCII Express*) was capable of this arcane configuration, and I was able to view high-speed short-cut graphics, made up of asterisks (*), brackets ([]), and other symbols.

I had arrived! Been initiated! Found the gold in the dungeon!

THE SAILOR MAN

Of course, multi-player games are not the only kind of games on CompuServe, nor is CompuServe the only network with games. But multi-player games are the only ones that take full advantage of the on-line environment. They may be good enough and different enough to induce serious gamers to buy a modem. Take it from "the sailor man:" "I stumbled into *SeaWAR* on my first night exploring CompuServe. I met some nice people, and I've been there ever since." Toot, toot! **FC**

GAMES MODEMS PLAY

Network/ # Subscribers	1-Player Games (against computer)	Multi-Player Games (2 or more at once)	System Requirements
CompuServe (614) 457-8650 (275,000)	Adventure/board/ card/trivia/sports/ war/space	Island of Kesmai/SeaWar/ SpaceWar/MegaWars/You Guessed It!/Blackjack/ and many more (up to 100 players)	All computers; Vindex software helpful for some games; color with Professional Connection III for IBM
Delphi (617) 491-3393 (800) 544-4005 (25,000)	Adventure/board/ logic/card/trivia/ trek/sports/flight simulation/arcade	Quest	All computers; reduced rates in Boston; VT52 terminal emulation for some games
GEInet (800) 638-9636 ext. 21 (5,000)	Adventure/fantasy	Stellar Warrior (up to 50 players)	All computers
PlayNET (518) 283-8682 (3,000)	None	12 board/bridge/ SeaStrike: in color (up to 6 players)	Commodore 64/128; 300- baud only; PlayNet software
The Source (703) 734-7500 (60,000)	Board/card/trek	None	All computers
QuantumLink (703) 448-8700 (10,000)	Board/card, in color	None	Commodore 64/128 only; QuantumLink software

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PUT A LABEL ON IT!

The data strips on the right contain one of the most popular programs ever to appear in FAMILY COMPUTING... ALL PURPOSE LABEL MAKER, by Joey Latimer.

The program, improved by reader suggestions, can handle most of your spur-of-the-moment label-making quickly and easily. Several readers modified the program to make mailing labels, while others created decorative designs to adorn kitchen spice bottles. One child wrote in that he used the program to label his baseball mitt, his bat, and his brother. ALL PURPOSE LABEL MAKER turned out to be useful in a number of different and unexpected ways.

The data strip on the near right is designed for IBM PC users. The far one is for Apple II series computers. Read the appropriate data strip into your data disk.

Apple users can RUN the program from the Cauzin Communications disk. IBM users need to enter BASIC and type RUN "LABEL".

To use the program you'll need 3 1/2 x 1 in. tractor-type labels (preferably one label wide) and a printer. You can make labels up to five lines long and each line may contain as many as thirty characters. Once a label is made, the printer automatically advances to the beginning of the next label.

There are a couple of hints you should be aware of for easier label making. Press RETURN or ENTER to leave a blank line. Use characters, such as an asterisk or minus-sign to make clever borders. Test your program, using tractor paper, before you try it with labels.

Make sure that your labels line up, side by side, with the labels printed on the tractor paper. If they don't, you may have the wrong size labels, or your printer's linefeed switch may need to be engaged (consult your printer manual for details.)

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CIRCLE READER SERVICE 10

COMPUTING CLINIC

What external modems will work with the Amiga computer?

K. FLOYD

Lawrenceville, GA

Almost any standard RS-232C external modem can be plugged into the Amiga's serial port. I use the U.S. Robotics Password modem, which uses some of the Hayes command set (AT for Attention, etc.) If a modem works on an IBM PC or compatible, or Apple IIe, it very likely will also work with the Amiga. (Get an RS-232 cable with male connectors at each end.) In addition, both Tecmar and Commodore are planning to market modems made specifically for the Amiga.

Don't forget communications software! *MaxiComm* (MaxiSoft [408] 625-4104; \$50) is a decent program that novices should find relatively easy to use. For experienced users who want more flexibility, *OnLine!* (Micro-Systems Software, Inc. [800] 327-8724; \$70) has a slew of features, including both XModem and CompuServe B file-transfer protocols. Make sure the type of modem you choose is supported by the software you buy.

—L.W.

In your December 1985 "2nd Annual Shopping Guide" you state that "the George Booth cartoons are . . . created with a KoalaPad connected to a Commodore, and then printed . . ." I have a C 64, KoalaPad, and Star Micronics SG-10 printer. How does one print a Koala drawing?

BASIL HENRIQUES

Pittsfield, MA

You may have overlooked the fact that our system included an Okimate 10 color printer. Included with that printer is "screen dump" software that allows you to print whatever you see on the screen. This software, unfortunately, does not come with either the KoalaPad or the SG-10, or any other printer.

However, a program called *Screen Dumper 64* (Micro-W Distributing,

Inc. [201] 838-9027; \$30) should do the trick. It works with most parallel printers that have graphics capability (including the Star Micronics), as long as you are using an "intelligent" interface such as the Tymac Connection, the Micro World MW 350, or the Cardco G-Whiz. —N.S.

Can you recommend a good public-domain communications program for the IBM PCjr?

KEVIN DAWDY

Kailua, Hawaii

One of the best communications programs for the IBM PCjr is *PC-Talk III*, developed by the late Andrew Flugelman, a print and software author. *PC-Talk III* is not a public-domain program; it costs \$35. However, the program was once free, and even now is a good value.

It should be available from your local IBM users' group, and your IBM dealer should be able to tell you how to contact a group. I got my copy from a friendly IBM dealer when I bought a modem at his store. If you have difficulty finding the program, it can be ordered from Freeware, Box 862, Tiburon, CA 94920 (415) 435-0770.

—J.B.

I am building a desk for my computer. What is the best placement for the monitor and keyboard to avoid eye and back strain?

JIM DE VRIES

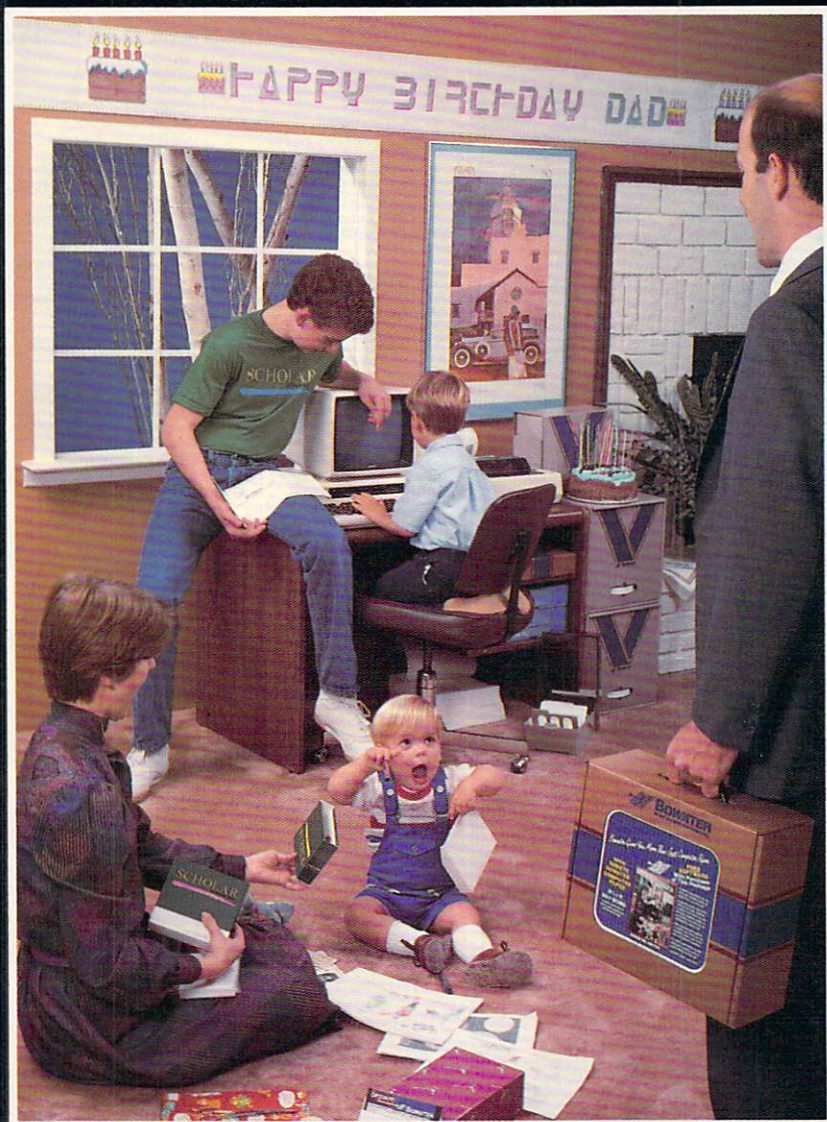
Santa Fe Springs, California

While many large computer makers pay great attention to ergonomics for their business users, little has been done for the personal computer user. In Europe (usually more advanced on these matters), the German national standards organization suggests that the keyboard be about 29 inches from the floor and the center of the monitor screen between 10 and 20 degrees below the horizontal plane of the user's eyes, at a viewing distance of 17 to 19 inches. To avoid back strain, the best device I know is the Danish Balans chair, on which the user kneels and sits so the spine remains upright. The chair looks strange, but is remarkably comfortable. You can find copies of this chair in contemporary furniture stores.

—J.B.

Clinic questions are answered by
JEFFREY BAIRSTOW and LOUIS WALLACE,
contributing editors, and NICK SULLIVAN,
senior editor. Due to volume of mail, we
regret that we cannot respond to each
letter, nor return unanswered questions.

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BUYER'S GUIDE TO PERSONAL COMPUTERS

READ OUR
REVIEWS
OF MAJOR
BRANDS
TO HELP
FIND
WHAT'S BEST
FOR YOU

BY NICK SULLIVAN

"What's the best computer?" In 1983, when FAMILY COMPUTING was just starting to publish, we found letters with that question in our mailbag all the time. Now, there's a new wave of buyers in the marketplace, and we're hearing that same question again—with a twist.

The question goes something like this: "I have a five-year-old. What's the best computer and software to teach him or her reading, writing, and counting?" Or, "I'm starting a word processing business. What computer should I get and what other equipment do I need?"

Today's buyers know there's no such thing as "the best computer." What counts is the best computer for their needs. They also know that the computer itself (CPU) is

just the tip of the iceberg. Equally important parts of the solution are software and peripheral equipment—such as monitors, disk drives, and printers.

Finally, new buyers don't fool themselves on price. Getting the best deal is not paramount. Getting the right equipment to do the job right is the key. Nor do they hew to the somewhat artificial distinctions between "home computers," "personal computers," and "business computers." They want a "computer," plain and simple. The real decision may be whether to shop in a computer specialty store or in a mass market outlet.

So what do you buy? In a handful of cases, people's needs, budget, and personality point to one computer. If so, buy it! More often, you have to narrow the choices through a process of elimination, and focus on two or three qualified candidates. To winnow serious candidates

Senior Editor NICK SULLIVAN generally edits the Buyer's Guides that appear in each issue.

from the long list of available computers, the guiding principle is this: *Find a computer and software package that do what you want, and see them in action.*

Actually choosing one computer over another is not unlike selecting a college to attend. Several colleges may fulfill your basic requirements, and each will have an unusual and alluring attribute. The final decision is purely personal. Duke? Ohio State? Harvard? UCLA? Just like computers, they all work—for different people with different needs.

When you read our reviews of leading computers, and check their specifications in the chart (pages 30-31), put yourself in the picture by listing your needs and matching them to the computers. We've given you a start with the "Recommendations" that follow each review and brief description of the manufacturer. (*Kaypro and Epson Equity, pictured here, will be reviewed in the July issue.*)

APPLE

Last year was tumultuous for Apple. Co-founder Steve Jobs was forced from the chairman's post, and costs were running out of control. It seemed like the high flyer of high-tech companies had become a major player in a Greek tragedy. But, with cost-cutting and no-nonsense leadership from its president John Sculley, Apple is now on its feet again, stronger than ever in schools and homes. A household word, in fact. And with the new Macintosh Plus, Apple is still trying to crack IBM's hold on the business market.

Through thick and thin, the 10-year-old Apple II line—as dependable as the model T—keeps running and selling. In fact, trade sources say that this fall Apple will introduce a new Apple II (the fifth model in the line after the II, II plus, IIe, and IIc) with a 16-bit microprocessor that is faster, can address more memory, and run more advanced software than the current 8-bit microprocessor.

APPLE IIc

Strengths. The Apple IIc is relatively easy to use and runs software of every type. Any educational or home-oriented software worth its salt runs on the IIc (and IIe). In addition, the best-selling *AppleWorks* program (word processing, database, spreadsheet) fulfills most basic business needs, and can be mastered quickly. Printer and modem ports are built into the IIc. Though not an RGB color monitor, the ColorMonitor IIc is good for color software as well as text applications that require 80-column screen displays. Alternatively, a television can be used as a color display. The new UniDisk 3.5 stores 800K—more than twice as much as a standard IBM PC drive—and can be connected as a second disk drive.

Weaknesses. The IIc is not a flexible system. (The more flexible Apple IIe can do everything the IIc does and more when its expansion slots are filled with add-on cards.) The printer port is non-standard and serial, limiting your selection of printers. To expand the IIc's memory beyond 128K you have to unscrew the casing and tinker around. (See "How To Soup Up Your Computer," in the April 1986 issue.) And "power users," programmers, musicians, and graphic artists will quickly find shortcomings with the machine.

Recommendation. Since the IIc's documentation is so clear, the IIc is an excellent computer for a novice. In addition, because its software library is so well balanced, the IIc can fulfill the needs of pros as well. Students, teachers, community organizers, and people who want to keep personal records or bank from home are just a few who could benefit. The IIc is easy to carry (without a monitor), thus good for college students or anyone who wants to travel. While adequate for occasional or light

business tasks, the IIc is not the best bet for a day-to-day business system.

512K MACINTOSH AND MACINTOSH PLUS

Strengths. The Macintosh, available in 512K ("Fat Mac") and 1 megabyte (Macintosh Plus) versions, is the computer that popularized the mouse, "windows," pull-down menus, and the "point-and-click" operating environment. To use the Macintosh you don't have to learn or remember DOS commands, as you do with MS-DOS and some other operating systems. The Macintosh system, monitor and disk drive are all part of a compact unit that can be easily moved or carried. The Macintosh's black-and-white screen is quite sharp and capable of displaying an unlimited number of text fonts, styles, and graphics. When teamed with the Apple LaserWriter printer, the Mac becomes a typesetting tool.

Weaknesses. The Macintosh can be a very frustrating machine to use—too "computery" for novices and too "novicy" for experts. Even with two disk drives and 512K, it can be slow and require constant disk swapping on simple chores. Neither Mac is available in a color version. The printer port is serial (as on the IIc), limiting your choice of printers. The Fat Mac has no numeric keypad and no cursor keys, somewhat restricting the user. Apple's Hard Disk 20, a 20-megabyte hard-disk drive, is expensive (\$1,895, the same price as an entire Leading Edge Model "D" system with a 20-megabyte drive).

Recommendation. The Macintosh makes sense for several types of people: heavy spreadsheet users who prefer the mouse-driven system to using a keyboard (the Macintosh and *Microsoft Excel* are becoming a familiar team); people who want to experiment with desktop publishing to print their own newsletters, flyers, or promotional brochures; and those with a graphic/visual bent, or who use graphics in their work.



ATARI

For as long as he's been in business, Jack Tramiel has believed in giving consumers the latest technology at "rock bottom prices." So, Atari's pitch—"power without the price"—is more than just a catchy slogan. It comes straight from the boss's heart, and is manifested in the 520ST and 1040ST. What Tramiel and Atari have to master now, having delivered the product, is dealer and customer relations.

The Atari 130XE, a 128K version of the old 800XL line, is a fine computer and often available at good prices in department stores. But since it's being supplanted by newer computers, finding software for it will get increasingly difficult. Get what you want as soon as possible.

ATARI 520ST AND 1040ST

Strengths. The Atari ST computers use a mouse-based operating system, but unlike the Macintosh they offer color. In fact, they are capable of displaying 512 colors, and with programs like D.E.G.A.S (Batteries Included; reviewed in this issue) the effects are quite stunning. If you buy the monochrome system, you'll find the display even sharper. The computer is "smart" enough to recognize which monitor you have plugged in.

Besides their unbeatably low prices, the STs offer two industry firsts—built-in hard-disk drive interfaces, and built-in MIDI (Musical Instrument Digital Interface) in/out ports to connect a wide range of musical synthesizers and electronic instruments. TOS, the operating system that came on disk with early models, is now built in, leaving more memory for the user. The GEM (Graphics Environment Manager) desktop environment, designed to be used with a mouse, allows most software to be used in a similar fashion. The keyboard has 10 function keys and cursor keys, allowing good flexibility.

Weaknesses. At press time, the Atari hard-disk drive

SHOPPING DOS AND DON'TS

- Do** figure out who in the family will use the computer and for what.
- Do** locate at least one piece of software you think you'd like and try it out at a friend's house or in a store.
- Do** figure out what equipment (printer, RGB monitor, number of disk drives, etc.) you'll need to run your chosen software.
- Do** ask the computer dealer if all the equipment you're buying is covered by warranty.
- Do** think ahead to your future needs, which may mean buying a computer you can expand.
- Do** consider a separate computer for your kids, rather than trying to find one "compromise" machine that suits everyone.
- Do** decide whether you need a computer that can share files or software with one at school or work.

- Don't** take any promised new products for granted, as the industry is notorious for "vaporware" (products that are announced but never appear).
- Don't** take a dealer's word that a certain software/hardware product does just what you want.
- Don't** buy any product based just on price.
- Don't** buy equipment you don't understand without seeing it work.
- Don't** get wowed by technology and buy features you won't use.
- Don't** buy a computer for which there is not a large and growing supply of software and peripherals.

was not yet ready, so the hard-disk drive interface is still untried. While you can probably find any kind of software you need, the piece of software that makes the ST worth buying has yet to be made. Some software written for the monochrome monitor will not work with the color monitor.

Recommendation. For musicians or programmers with a musical bent, the ST should be a welcome addition to the band. For people who want to sample the excitement of today's latest computer technology at "rock bottom" prices, the ST is supreme. Professionals who want a computer as a functional tool will be able to do most everything they want, but should know in advance they will be pioneers, with all the attendant risks and rewards. Unless you're focusing on text-only applications, buy the color system. It may enchant you.

COMMODORE

It has to be said: Commodore is not a rock-solid company right now. Last February, Commodore was in technical default of long-term loans, its stock price careened below \$6, and the Amiga (the company's future) was looking for an identity.

Commodore has closed down some of its inefficient manufacturing operations, and says that Amiga software should begin showing up in quantity this summer. (It was supposed to show up last Christmas.) Meanwhile, the Commodore 64 and 128, as important to Commodore's bottom line as the Apple II line is to Apple, continue to sell well.

The company is doing its part to foster the growth of telecomputing. On CompuServe and QuantumLink, you can contact Commodore engineers through a "hot line." Commodore sells an inexpensive 1200-baud modem, and for a while was giving away a 300-baud modem with purchase of the C 128.

COMMODORE 128

Strengths. The C 128 is the C 64: Part Two. That's a bonus because the C 64 did and does a lot of things well. The C 128 runs all C 64 programs, and uses all C 64 peripherals. It has the 64's "user port," where you can



plug in a modem or speech synthesizer, and the C 64's cartridge port. Besides extra memory, the C 128's main improvement over the C 64 is an 80-column screen display, though you need the Commodore 1902 RGB monitor (\$299). Owners of the popular *PaperClip* word processor can get an 80-column upgrade version from Batteries Included for \$35, and a new 80-column version of *MultiPlan* from Epyx (\$95-\$195).

Beyond this, the C 128 has an expanded keyboard, with a numeric keypad and function keys. The C 128's built-in BASIC 7.0 is very powerful, with more than 140 commands, some of which give you control over color, sound, and sprites. The 1571 disk drive is faster than the old 1541, and even runs some old CP/M software.

Weaknesses. Precious little software that takes advantage of the C 128's memory and 80-column display has been produced, so to a certain extent it's a machine with untapped potential. Timeworks, to its credit, has lead the way with *Sylvia Porter's Financial Planner*, *Sideways*, *Word Writer 128*, *Data Manager 128*, *Partner*

128, and *SwiftCalc 128*. However, most software developers prefer to write software that runs on both the C 64 and 128. The *Perfect* series and *Jane*, which Commodore has long promised, have never arrived. And buying a complete C 128 system—with 1902 monitor and 1571 disk drive—costs about \$700, more than an Atari 520ST, and close to that of an Apple IIc or Tandy 1000.

Recommendation. Because it can use all C 64 equipment, the C 128 makes sense primarily as an upgrade for C 64 owners. Buying a C 128 is a good way for 64 owners (numbering 5 million!) to "soup up" their aging machine, just as many VIC-20 owners upgraded to 64s. In addition, technical-minded users will enjoy the C 128's BASIC, arguably the best to be found in a microcomputer, and tinkering with the 128's CP/M mode.

AMIGA

Strengths. The Amiga is in many ways a groundbreaking machine. It has special chips to control sound (it can produce male and female speech through BASIC),

20 POPULAR COMPUTERS FROM MAJOR

Computer Model	List Price*	RAM: (Min/Max) ²	Disk Storage	Hardware Included	Software Included	Built-in Ports
Apple IIc	\$995	128K	143K	5 1/4-inch disk drive, monochrome monitor	ProDOS, BASIC, tutorial	2 serial, disk drive, mouse/joystick
Apple IIe	\$1,673	128K/1MB	143K	Two 5 1/4-inch disk drives, monochrome monitor	ProDOS, BASIC, tutorial	mouse/joystick
Apple Macintosh	\$1,999	512K/1MB	400K	3 1/2-inch disk drive, monochrome monitor, mouse	Finder, MacWrite, MacPaint, tutorial, desk accessories	2 serial, disk drive, mouse, sound
Apple Macintosh Plus	\$2,599	1MB	800K	3 1/2-inch disk drive, monochrome monitor, mouse, numeric keypad	Finder, tutorial, desk accessories	2 serial, disk drive, mouse, sound, SCSI
Atari 130XE	\$150	128K/1MB	127K	None	BASIC	Serial, disk drive, cartridge port, joystick
Atari 520ST	\$699	512K/4MB	360K	3 1/2-inch disk drive, monochrome monitor, mouse, numeric keypad	BASIC, Logo, GEM, TOS, desk accessories, 1st Word	Serial, parallel, disk drive, DMA, MIDI, cartridge, joystick, RGB
Atari 1040ST	\$999	1MB/4MB	720K	3 1/2-inch disk drive, monochrome monitor, mouse, numeric keypad	BASIC, Logo, TOS, GEM, 1st Word, desk accessories	Serial, parallel, disk drive, DMA, MIDI, cartridge, joystick, RGB
Commodore 64	\$149	64K	170K	None	BASIC	Serial, cartridge port, joystick, disk drive
Commodore 128	\$299	128K/512K	350K	Numeric keypad	BASIC, CP/M, tutorial	Serial, parallel, 3 video, disk drive, joystick/mouse
Commodore Amiga	\$1,295	256K/512K	880K	3 1/2-inch disk drive, mouse, numeric keypad	Amiga DOS, BASIC, Amiga tutor, Intuition user interface	Serial, parallel, 3 video, 2 controller, disk drive
Compaq Portable Model 1	\$2,199	256K/640K	360K	5 1/4-inch disk drive, monochrome monitor, (can run color software)	MS-DOS, BASIC	Parallel, RGB
Epson Equity Model 1	\$995	256K/640K	360K	Numeric keypad, One 5 1/4-inch disk drive	MS-DOS, BASIC	Serial, parallel, RGB
IBM PC	\$2,295	256K/640K	360K	Two 5 1/4-inch disk drives, numeric keypad	BASIC	None
IBM PCjr	\$725	128K/512K	360K	One 5 1/4-inch disk drive, color graphics	BASIC, PC-DOS	Serial, cartridge port, RGB, lightpen, joystick
Kaypro PC	\$1,595	256K/640K	360K	Two 5 1/4-inch disk drives, color graphics, monochrome monitor, numeric keypad	BASIC, MS-DOS, Star Series, Mite, Polywindows	Serial, parallel, RGB
Leading Edge Model D	\$1,495	256K/640K	360K	Two 5 1/4-inch disk drives, monochrome monitor ³ , color graphics, numeric keypad	MS-DOS, BASIC, Leading Edge Word Processing	Serial, parallel, RGB
Tandy 1000	\$999	128K/640K	360K	5 1/4-inch disk drive, numeric keypad, color graphics	MS-DOS, BASIC, DeskMate	Parallel, joystick, lightpen, RGB
Tandy Color Computer 2	\$199	64K ⁴	156K	None	Extended Color BASIC	Serial, cartridge port, joystick
Tandy Model 4D	\$1,199	64K/128K	368K	Two 5 1/4-inch disk drives, monochrome monitor, numeric keypad	TRSDOS, BASIC, DeskMate	Serial, parallel
Zenith Z-158	\$2,299	256K/640K	360K	One 5 1/4-inch disk drive, monochrome monitor, numeric keypad	MS-DOS	Serial, parallel, RGB

¹ Text is "bit-mapped". Thus characters can be formed in various sizes. ² Some slots must be used for video adapters, extra memory & interfaces. ³ Maximum memory, display, and resolution as given by manufacturer. ⁴ Available in 16K model, without Extended BASIC. ⁵ Displays graphics. *Most commonly-sold package.

graphics, and animation. Because of this, the central microprocessor is freed up to work harder. For instance, the Amiga has "multi-tasking" ability, meaning it can run more than one program at a time. While IBM PCs and others can hold several programs in memory at once and switch between them, the Amiga can actively run several programs at once. In theory, a spreadsheet could be calculating, a word processor printing out, and a communications package making a telephone call. The Amiga is capable of displaying 4,096 colors. Coupled with its superb sound-generating ability, the Amiga can produce all kinds of new-age audiovisual effects.

Weaknesses. The Amiga's Achilles heel is lack of software. Since there's so little software available, it's hard to get a feel for how well the machine actually works under "game conditions." Much of the available software was originally written for other computers, and doesn't particularly take advantage of the Amiga's potential. The IBM "emulator" disk that is supposed to make the Amiga run IBM software has yet to be tested by users. The 256K

that comes with the standard machine actually leaves only 150K free once the *Workbench* desktop is loaded from the disk. So you really need the 512K model to run most software or have any hope of multi-tasking.

Recommendation. Right now, the Amiga is best suited for graphic artists who want to experiment with computer effects (using Electronic Arts' *Deluxe Video*). Also, programmers who want to experiment with the Motorola 68000 chip, the type used in the Macintosh, Amiga, and Atari ST, have a wide open chance to write ground-breaking software. Let's stock up on candy bars and get going!

COMPAQ

Compaq, founded three years ago by Rob Canion and several other ex-Texas Instruments executives, reached \$500 million in annual sales faster than any company in American history. Inflation has something to do with this record, but not as much as good product and good management. Compaq's relations with its dealers, for instance, are superb. Compaq was the first computer to establish itself as a serious alternative to buying IBM, and it did so with a suitcase-sized transportable. Compaq now sells a whole line of PC, XT, and AT compatible computers, some transportable and some desktop. All offer a little more than IBM (especially speed), for a little less money. (See *New Hardware* on page 82 for news on the Compaq Portable II.)

COMPAQ PORTABLE

Strengths. The Portable, the original Compaq computer, runs virtually all IBM PC software. It has sold so well that IBM even brought out a look-alike, the IBM PC Portable, which has not been nearly as successful. Though the Compaq Portable has a built-in monochrome screen, it can run color graphics software (in monochrome), something neither IBM nor other compatible computers can do. The small nine-inch screen display is extremely sharp. Besides its dependability and functionality, the real beauty of the Compaq is its portability. Fold it up in a minute, and put it in your car for a weekend retreat or a week-long business trip.

Weaknesses. The machine's drawbacks are quite obvious, and shouldn't come as an unpleasant surprise to any buyer. Characters on the nine-inch screen may be too small for some eyes. The computer weighs about 28 pounds, so it's not something you want to carry every day (unless you're into body-building). Finally, if you prefer to work in color, hooking up a color monitor (the monochrome is built in and cannot be removed) somewhat negates the computer's purpose.

Recommendation. As a straight IBM-compatible, the Compaq Portable has more competition than it did a year ago. You can find better prices, though you won't find a computer that is more compatible or dependable. As a portable IBM-compatible, the Compaq faces competition from laptops, though it's much more readable and flexible. If you think this is too much competition, look at the upper end of the Compaq line. Those models put some distance between Compaq and other compatible-makers.

IBM

In ancient Rome, the world of Caesar and the world of God were distinct (at least according to God). Today's computer world is just as cleanly split. Computer users either follow IBM or they don't. This state of affairs is because of the IBM PC, whose operating system and general design have become the most dominant standard in an industry without standards. And as far as anyone can tell, IBM will continue to support the MS-DOS/PC-DOS operating system with future computers. But, now that virtually any manufacturer can produce a legal and low-

MANUFACTURERS

Maximum Text Display ³	Maximum Resolution ³	Expansion Slots	Colors	Sound Channels
80 x 24	560 x 192	No	16	1
80 x 24	560 x 192	8 ²	16	1
Varies ¹	512 x 342	No	B&W	4
Varies ¹	512 x 342	No	B&W	4
40 x 24	320 x 200	No	256	3
Varies ¹	640 x 400	No	512	3
Varies ¹	640 x 400	No	512	3
40 x 25	320 x 200	1	16	3
80 x 25	640 x 200	1	16	3
Varies ¹	640 x 200	2	4,096	4
80 x 25	640 x 420	2	mono-chrome	None
80 x 25	640 x 200	3	16	1
80 x 25	640 x 200	5 ²	16	1
80 x 25	640 x 200	2-4	16	3
80 x 25	640 x 200	6	16	1
80 x 25	720 x 348	4	16	1
80 x 25	640 x 200	3	16	3
32 x 16	256 x 192	No	8	1
80 x 24	128 x 64	No	B&W	1
80 x 25	640 x 200	6	16	1

cost IBM compatible (see "IBM Compatibles" in March 1986, and "Low-Cost IBM Compatibles" next month), it's not clear what IBM will do to counteract the sales it's losing. However, recently announced price cuts and the introduction of the PC Convertible, the new IBM lap-top with 3.5-inch disk drives, may help.

We review the IBM PC because it's the "father figure," even though the PCjr is still being sold, and the PC XT (with more expansion slots and a larger power supply) is outselling the PC.

IBM PC

Strengths. The IBM PC can run all the top business software, can be expanded beyond 640K RAM, and has a clean, sharp screen display. Almost all new software these days comes out in an IBM version, or will be translated if it's a success. With three expansion slots left open after you install the necessary interfaces, you can add video enhancers, hard disk drives, and a host of other devices that improve the machine's performance. The PC keyboard has 10 function keys that most software uses to good advantage and a PrtSc key that allows you to make a hard copy of anything that appears on screen. The keyboard attaches by cable to the system unit and can be moved around. Software written to work under GEM (Graphics Environment Manager) uses a mouse, pull-down menus, and windows. *The Isgur Portfolio System* (Batteries Included) makes good use of GEM.

Weaknesses. Even though IBM has recently cut prices to keep up with the competition that nips at its heels, the IBM PC is expensive. Virtually everything (PC DOS, monitor and printer interfaces, etc.) costs extra. It's also large and heavy—not something you push to the side to free desk space. The SHIFT keys and RETURN key are small and misplaced, adversely affecting touch typists. The PC has different circuits for color and monochrome graphics, so you sometimes have to switch monitors to run certain software.

Recommendation. On the IBM PC, the name IBM is a safety net. As the standard for business computing, you can be sure any new software or hardware will work on or with the IBM PC. But, you can certainly find better deals elsewhere. If IBM appeals to you, it might just make sense to wait for IBM's next move, before you make yours.

LEADING EDGE

Leading Edge is not a new company, but is making a name for itself for the first time. That's because of the Korean-made Leading Edge Model "D," the hot-selling IBM-compatible (see "Hands-On Review" in the May 1986 issue) that is the company's first successful product under the Leading Edge name. In the past, Leading Edge has sold Gorilla monitors, Banana printers, and Elephant floppy disks. It also sells the Leading Edge Model "M," which is not nearly as successful as the Model "D." Leading Edge sells the *Leading Edge Word Processing* and the *Nutshell* database manager.

LEADING EDGE MODEL "D"

Strengths. The Model "D" is basically an IBM PC with all the options you need to start computing right away. It runs virtually all IBM PC software, and includes serial and parallel ports, monochrome and color monitor interfaces, and a hi-res monochrome monitor (green or amber). The screen display is very sharp and displays graphics (an extra cost on the IBM PC). For a computer that works as well as it does, and comes ready to use, the price is hard to beat. As a bonus, you get the *Leading Edge Word Processing* program when you buy the "D." For \$1,895, you can get an RGB color monitor instead of a monochrome; or a monochrome monitor and a 20 mega-

byte hard-disk drive built in. That's the kind of deal Atari's Jack Tramiel is known for throwing together.

Weaknesses. On the hard-disk drive models, some dealers install third-party drives (not made by Leading Edge), and that voids the Leading Edge service contract. The dealer who installs the drives will probably service the computer, but it's a potentially troublesome arrangement. The 20 megabyte drive is new and untested. While most software runs on the Model "D," programs that require IBM PC BASIC ROM chips—admittedly a small group—will not run.

Recommendation. The Model "D" is best suited for someone who wants to use a computer frequently for business tasks. With its sharp display, you can use the "D" for hours without eye fatigue, and most any software you need is likely to be available. With a color monitor, the "D" is a fine gaming or educational computer as well.

TANDY


Tandy, one of the industry's pioneers with the TRS-80 Model 1 (1977), and the world's leading computer retailer, has switched to the MS-DOS world. And what a success it's been! The Tandy 1000 is outselling the IBM PC, according to the company, and is Tandy's all-time best-selling computer. Other computers in the MS-DOS line include the Tandy 1200, 2000, and 3000. The Tandy Model 4D, the last of the Model 1 line, doesn't stack up well against the 1000. And at this point the Tandy Color Computer, which can use cartridge software and a television, is probably best considered as a low-cost introductory computer for young children (or, with the Extended BASIC model, as a machine for programmers).

As always, one of Tandy's strengths is its nationwide network of dealers and service centers, housed in Radio Shack outlets. Most every town has got one, often located next to the drug store on Main Street.

TANDY 1000

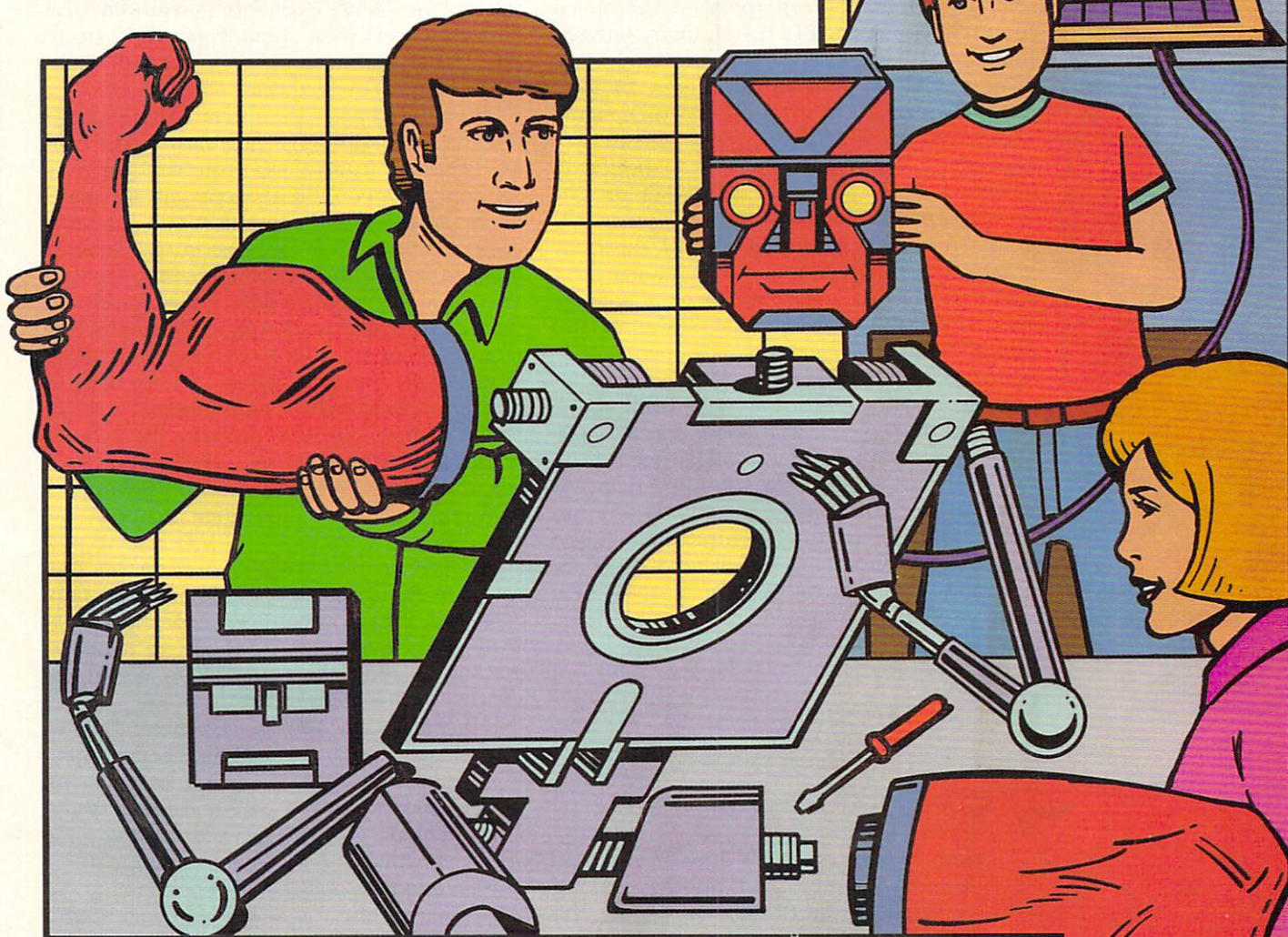
Strengths. The Tandy 1000 runs most IBM software, and many titles have been reissued with special documentation for the 1000. The 1000 has better sound and color capability than the IBM PC, though only a handful of programs support those features. A parallel printer port, monochrome and RGB color monitor interfaces, and two joystick ports are built in, so it's set for gaming. The 1000 can also be used with a TV. *DeskMate* software—an integrated package with six applications programs—comes with the 1000. So, for a relatively low startup cost (\$999), you can start computing.

Weaknesses. The CM-4 color monitor, often sold in a package with the 1000, is not as sharp as many other monitors on the market. (Look instead at the CM-2.) The keyboard differs from that of the IBM PC in several regards, which means you can't always easily follow the IBM PC documentation. Because the 1000 system unit is smaller than the IBM PC, long expansion boards (14-inch) made for the IBM won't fit inside the Tandy. In fact, the 1000 is more an IBM PCjr-compatible than an IBM PC-compatible. (If you want a machine that's even more IBM-compatible, look at the Tandy 1200.) Tandy makes its own expansion boards, but you don't have as wide a range to choose from.

Recommendation. The 1000 is ideally suited for a household with a parent who uses an IBM at work and wants a compatible to use at home that is also suitable for children's use. With the installation of the Trackstar board, you can even run Apple II plus software, which many schools use. Of course, the 1000's low startup cost makes it attractive to a wide range of users, including those who want to learn the MS-DOS operating system. 

Soup Up Your Software

NEW PROGRAMS ADD POWER TO APPLEWORKS, THE PRINT SHOP, THE NEWSROOM, AND MORE



BY STEVE MORGENSTERN

Do you ever wish that your favorite software package had more features? Does it need some extra "oomph"? Well then, it may be time to think about buying a software add-on.

The right add-on package can "soup up" your favorite program, making it more fun,

(Editor's note: In our April issue, "How To Soup Up Your Computer" gave you a look at hardware enhancements—memory, video, and print—for your computer. Now the focus is on ways of souping up your software, extending its power with add-on packages.)

more useful, and more versatile. There are three basic types of software add-ons:

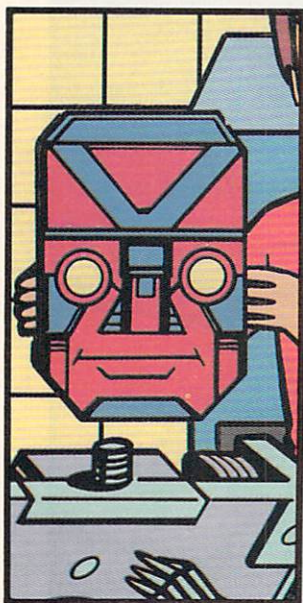
1. Accessories: Programs that add extra functions to existing software. Do you want the computer to automatically dial a phone number while you're working on a word processing document? How about check your spelling or print out your checks? These are just a few of the functions you'll find in accessory programs.

2. Templates: For programs that require setting up a structure for organizing information (mostly data-base and spreadsheet programs), templates are prepared forms, all set

STEVE MORGENSTERN's last feature for FAMILY COMPUTING was "Get Organized for Good With Data-base Software" in the March issue.

ILLUSTRATION BY BRAD HAMMAN

THE RIGHT ADD-ON PACKAGE CAN MAKE YOUR FAVORITE PROGRAM MORE FUN, MORE USEFUL, AND MORE VERSATILE.



up and ready for you to fill in with your own information.

3. Libraries: Collections of artwork that can be plugged into another program.

THE GROWTH OF ADD-ONS

The concept of software add-ons really started with packages designed for business use. The first were programs that enhanced popular software packages like Lotus 1-2-3 or dBASE II, and desk accessories such as SideKick. In the past year, extraordinary attention has been focused on two popular packages with broad use—*AppleWorks* and *The Print Shop*. Both have achieved bestseller status, and held on to the top spots on the charts month after month. As a result, many software publishers have jumped on the bandwagon with a host of add-on programs to both *AppleWorks* and *The Print Shop*, which significantly "soup up" the performance of each package. In many cases, products specifically designed to work with *AppleWorks* or *The Print Shop* also work with other, similar programs. And other popular programs, especially graphics, have grown their own add-ons.

In Part I of this article, we'll look at some of the fascinating software add-ons available for *AppleWorks*, from mailmerge to personal finance. In Part II, our focus will be on graphics programs, with *The Print Shop* leading the way. We think you'll find some specific software packages that might make good additions to your current collection, and help you gain an idea of the types of add-ons you can look for in the coming months. Remember: The category of add-ons is hot, and there are new additions arriving weekly at your local store.

Part I: APPLEWORKS, AN EXTREMELY EXTENDABLE PROGRAM

In many computer stores, *AppleWorks* has become almost a standard purchase along with an Apple IIe or IIc. By combining the three most popular computer productivity tools—word processor, spreadsheet, and data base—in a reasonably priced, extremely easy-to-use package, Apple sold a lot of software, and also proved that there's still life in the old Apple II line. The fact that the *AppleWorks* functions are integrated hasn't hurt either. Integrated means that you can take data from one function (say, information from a database file) and move it or incorporate it effortlessly into another function (a word processing document, for instance).

As someone who spends literally hours every day staring at the *AppleWorks* screen, I was excited to discover two different desktop accessory programs specially designed to work with

AppleWorks. Both *Jeeves* and *Pinpoint* put useful additional functions just a few key-strokes away.

Jeeves from PBI Software has fewer functions than Pinpoint Publishing's *Pinpoint*, but offers other advantages to offset this limitation. With a monthly appointment calendar, a phone dialer with directory, a memo pad for keeping quick notes, and a software alarm clock, *Jeeves* is easy to install and a snap to call up while you're working. Just hold down the open-Apple and closed-Apple keys at the same time and *Jeeves* appears on-screen. *AppleWorks* users who don't have a clock installed in their computers will be pleased with the way the *Jeeves* clock function automatically time-stamps their *AppleWorks* files; hasn't that blank column in the disk directory under "Time" always bugged you?

Pinpoint lacks a clock function, but boasts a wide range of additional capabilities. The communications feature lets you connect your computer to an on-line service such as CompuServe, or to another computer, and send files back and forth. You can type quick notes directly to your printer without opening separate word processing documents. I particularly like the Graphmerge function that lets you include pictures in your word processing documents, or at least, I like it in theory. The initial program release supports Graphmerge only for Apple, C. Itoh and NEC printers. No Epsoms, no Okidatas, no luck for me, unless I purchase one of the additional modules for printing out pictures on these and other unsupported printers.

One of the most exciting features of *Pinpoint*, in fact, is its expandability. The publisher has already announced a spelling checker as a separate option that can be added to the *Pinpoint* functions, and plans additional add-ons to this software.

In the meantime, the choice between the two programs is tricky. *Jeeves* has a better calculator function (a feature I use a lot), appears more quickly when you call, and has a useful software clock. *Pinpoint* has that neat graphic merge capability, a modem communications feature, and the potential for expandability. No matter which one you select, you come out a winner over *AppleWorks* alone. And even if you don't use *AppleWorks*, these desktop accessories will work alongside most ProDOS programs written in BASIC, such as ones you might write yourself.

MAILMERGE AND SPELLING CHECKERS FOR APPLEWORKS

Merging mail and checking spelling have practically nothing to do with one another. Mailmerge is the ability to take information from a data-base file and plug it into the appropriate spots in a word-processed form letter, creating customized mass mailings. Spell checking involves having the computer "read" through your writing and point out the spell-

ing mistakes and typos. The only thing these two capabilities have in common is that neither one is available in *AppleWorks* itself. This has led more than one publisher to bundle the two abilities in combination mailmerge/spelling checker packages.

(It's worth pointing out that spelling checkers and other word processing add-ons are a rapidly growing field of support software. *FAMILY COMPUTING* will cover word processing add-on software in depth in our September issue. For now, we'll focus on just those add-ons which are specifically targeted for *AppleWorks*.)

Products combining mailmerge with spell checking include *Spellworks* from Advanced Logic Systems and *MegaWorks* from Megahaus. *Spellworks* boasts a 90,000-word dictionary, and allows users to add approximately 2,000 words. *MegaWorks*, on the other hand, starts with a 50,000-word dictionary, but allows you to add 10,000 words of your own. This is a significant difference that, once again, will depend on your personal preferences. If you use a lot of names, or a distinctive vocabulary, you might prefer the greater expandability of *MegaWorks*. If your writing tends more to regular out-of-the-book words, the larger standard dictionary of *Spellworks* could be superior. When it comes to creating form letters, the two programs are extremely similar—both get the job done. However, neither offers the useful additional feature of printing mailing labels that you'll find in a third program, *HabaMerge* from Haba/Arrays, a mailmerge only (no spelling checker) program.

SUPERCHARGE YOUR APPLEWORKS DATA BASE

Megahaus bolsters the *AppleWorks* data base with its *ReportWorks* package. Plain *AppleWorks* is fine for organizing simple lists of information, but it falls short when compared to business-oriented data-base managers. Add on *ReportWorks*, though, and you have a real power tool.

First and foremost, *ReportWorks* lets you pull information from several separate files into one report. For example, you might have one file with the names of everyone you want to invite to a party, and a separate master file with the names and addresses of everyone you know. *ReportWorks* will take the names from the invitation list, get their addresses from the master file, and print out a comprehensive report. This example barely hints at the flexibility of the program—you can actually link nine separate files in a single report.

Other nice *ReportWorks* features include the freedom to design a greater variety of report formats, strong mathematical functions (beyond four-function arithmetic), and automatic page numbering with headers, footers, and a title page. These and other improvements turn a good filing program into a full-featured data

ADD-ON SOFTWARE PRODUCT INFORMATION

APPLEWORKS

AppleWorks add-ons require 64K Apple IIe or IIc, unless noted otherwise.

AppleWorks. Apple Computer, (408) 996-1010. Apple IIe/IIc (128K recommended). \$250. **GraphWorks.** version 1.3. PBI Software, (415) 349-8765. 128K Apple IIe/IIc. \$80. **HabaMerge.** Haba/Arrays, (818) 901-8828. 128K Apple IIe/IIc. \$50. **HabaTemplates.** Haba/Arrays, (818) 901-8828. Apple IIe/IIc. \$30. **Jeeves.** PBI Software, (415) 349-8765. 128K enhanced Apple IIe/IIc. \$50. **MegaWorks.** Megahaus, (619) 450-1230. 128K Apple IIe/IIc. \$125. **MoneyWorks.** Apropos Software, (415) 948-7227. 128K Apple IIe/IIc. \$70. **Pinpoint.** Pinpoint Publishing, (415) 654-3050. 128K enhanced Apple IIe/IIc. \$70. **Quicken.** Intuit, (415) 322-0590. 128K Apple IIe/IIc (separate version for IBM PC/PCjr). \$79-\$99. **ReportWorks.** Megahaus, (619) 450-1230. 128K enhanced Apple IIe/IIc. \$125. **Spellworks.** Advanced Logic Systems, (408) 730-0307. 128K Apple IIe/IIc. \$50.

GRAPHICS SOFTWARE

Unless otherwise noted, minimum memory requirements are 48K for Apple, 48K for Atari 800/XL/XE series, 128K for IBM PC/PCjr and compatibles, and 128K for Macintosh.

Art a la Mac, Volumes 1 & 2. Springboard Software, (612) 944-3912. Macintosh. \$40 each. **Blazing Paddles.** Baudville, (616) 957-3036. Apple, Atari, C 64/128. \$35-\$50. **Click Art, Click Art Letters, and Click Art Publications.** T/Maker Graphics, (415) 962-0195. Macintosh. \$50 each. **Clip Art Collection, Volumes 1 & 2.** Springboard Software, (612) 944-3912. 64K Apple, IBM PC/PCjr with 256K, C 64/128. \$30 Vol. 1; \$40 Vol. 2. **Fontpaks, Volumes 1-13.** Data Transforms, (303) 832-1501. Apple, 256K IBM PC/PCjr. \$25 each. **Fontrix.** Data Transforms, (303) 832-1501. Apple, 256K IBM PC/PCjr. \$95-\$155. **Graphics Expander, Volume 1.** Springboard Software, (612) 944-3912. 64K Apple. \$40. **Mac the Knife, Volumes I & II.** Miles Computing, (818) 341-1411. Macintosh. \$40 (Vol. I); \$50 (Vol. II). **Minipix.** Beagle Bros, (619) 296-6400. Apple. \$30. **MousePaint** (comes with Apple Mouse). Apple Computer, (408) 996-1010. 64K Apple. \$100 (Apple IIc); \$150 (Apple IIe/II+). **The Newsroom.** Springboard, (612) 944-3912. 64K Apple, C 64/128, IBM PC/PCjr with 256K \$50-\$60. **PrintMaster.** Unison World, (415) 848-6666. Apple, Atari 520ST, C 64/128, IBM PC/PCjr. \$35-\$60. **PrintMaster Art Gallery I.** Unison World, (415) 848-6666. Apple, C 64/128, IBM PC/PCjr, Atari 520ST. \$25-\$40. **The Print Shop.** Broderbund Software, (415) 479-1170. Apple, Atari, C 64/128, IBM PC/PCjr. \$45-\$60. **The Print Shop Companion.** Broderbund Software, (415) 479-1170, 64K Apple, 64K Atari, C 64/128. \$35-\$40. **The Print Shop Graphics Library, Disks 1-3.** Broderbund Software, (415) 479-1170. Apple, Atari, C 64/128, IBM PC/PCjr (only disks 1 & 2 available for IBM). \$25-\$35.

base. Before you trade up from *AppleWorks* to a more powerful data base, check out *ReportWorks*.

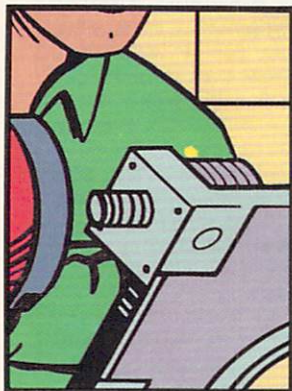
APPLEWORKING WITH NUMBERS

Making Graphs. One serious business capability recently added to the *AppleWorks* arsenal is graphing. Sometimes it takes more than columns of numbers, no matter how elegantly they've been figured, to communicate what's really happening. For *AppleWorks* users, there's now a quick and easy way to produce graphs. Working directly from figures contained in your *AppleWorks* spreadsheet, *GraphWorks*, version 1.3 from PBI Software, draws all sorts of graphs—pie charts, bar charts, stacked bar charts, and line charts—most anything your little chart desires. Selecting the data to be included is as simple as pointing to it with the cursor. Another good feature is the ability to print in two sizes, one full-page, the other about one-quarter page. It also will print spreadsheets sideways.

Personal Finance. If you want *AppleWorks* to check on your checking accounts, check out *Quicken*, published by Intuit. *Quicken* is certainly not the first checking account manage-

**ADD-ONS ARE
HOT—THERE ARE
NEW PACKAGES
ARRIVING
WEEKLY AT
YOUR LOCAL
STORE.**

**MY RENDITION
OF A CUTE,
FURRY RABBIT
WOULD GIVE
CHILDREN
NIGHTMARES.**



ment program on the market, but it is one of the most innovative and useful. By calling up an on-screen blank check form, you can fill out the check, have the information automatically entered in the checkbook register at the same time, and then print out the business-sized check on your computer. The program stands on its own quite nicely, but combining it with *AppleWorks* adds an important capability. One of *Quicken's* most appealing functions is the ability to transfer information directly from your computerized checkbook into an *AppleWorks* spreadsheet. Once you've set up your spreadsheet, the figures practically analyze themselves, and you'll have a better handle on where your dollars go.

Spreadsheet Templates. And speaking of setting up spreadsheets, you don't have to do it yourself anymore, thanks to the packages of templates for spreadsheets and data bases ready to use right off the shelf. *AppleWorks* users will find 17 different ready-to-use spreadsheets and 37 data-base files in the *HabaTemplates* package from Haba/Arrays. If you have an appreciation for depreciation, or business or rental income to track, or expenses or sales to consider, you'll find a spreadsheet model to suit you in the Haba collection. The data base section includes appointment calendars and address books, collection catalogs, home maintenance logs and more. There's nothing here you couldn't create yourself, but the choices presented are wide ranging and the templates well done.

A different kind of template is offered by Apropos Software with their *MoneyWorks* product. The *MoneyWorks* spreadsheets come complete with mathematical formulas for use in evaluating eight major household financial transactions, including buying versus leasing an auto, planning for college costs, buying a home compared to renting, and more. All you do is load the appropriate spreadsheet into *AppleWorks* and plug in your figures.

Part II: CREATE MORE WITH THE PRINT SHOP, THE NEWSROOM, FONTRIX, AND OTHER GRAPHICS PROGRAMS

There are people in this world who can sit down in front of a computer, take a touch pad, mouse, or even joystick in hand, and create fabulous pictures on the monitor. Yet somehow, when I try to draw a robot, it comes out looking like a melted jukebox. My rendition of a cute, furry rabbit would give children nightmares. Even something as simple as a valentine suffers from some strange coronary disorder when I try to draw it on my computer.

This all-too-common failing on my part

wouldn't be much of a problem, except that I love to write graphics programs and create computer-printed posters, greeting cards, and banners. Luckily, some smart software publishers have captured the work of those fortunate few with artistic ability and offered it to me in the form of graphics library disks.

The first wave of graphic library products was born to support the Macintosh. When Apple created a graphics-oriented computer "for the rest of us," they didn't take into account the fact that most of the rest of us can't draw to save our souls. Enter volumes of clip art like *Art a la Mac*, *Mac the Knife*, and the *ClickArt* series with their *MacPaint*-file graphic images, all ready to be grabbed and dragged into Mac letters, pictures, and programs.

ENTER THE GROWING WORLD OF THE PRINT SHOP

The breakthrough program in motivating publishers to provide serious art collections for computers other than the Macintosh was Broderbund Software's *The Print Shop*. On the surface, *The Print Shop* is not a radical kind of a program. No brilliant programming discovery or outrageous stroke of genius was required to create it. Yet it filled a need by providing an extremely easy-to-use tool for performing graphic communication with your personal computer. *The Print Shop* is nothing short of elegant in its simplicity. Its collection of pictures and typefaces allows even the most fumble-thumbed scrawler to make an attractive statement, in the form of a greeting card, sign, or banner.

Broderbund has responded with more of a good thing—namely, three editions of *The Print Shop Graphics Library*. Each of these collections offers hundreds of professionally drawn images ready to cut and paste into your creations from *The Print Shop*.

Then Broderbund went one step further with still another add-on product, *The Print Shop Companion*. Where the *Graphics Library* disks add only new pictures to the creative stockpile, *Companion* provides a dozen new type fonts and 50 new borders, plus a set of numerals. That's just the start of the expanded creative possibilities, though. Apple and Commodore *Companion* users can now capture sections of pictures created with other drawing programs, or even images from commercial game software, and turn them into graphics for use in *Print Shop* projects. For additional fun, you can print calendars, and there's a Creature Maker that lets you mix and match monster parts for custom-built weird creations.

We mentioned earlier the notion of "standard" software packages—programs that are thought of as the product to buy in a particular category. One sign that a product has reached this level of acceptance is when other software publishers introduce their own products to enhance someone else's original. This

has recently happened with *The Print Shop*, as several notable add-ons have been released from a variety of companies.

Springboard Software's *Graphics Expander, Volume 1* provides over 300 pictures to use as clip art in *The Print Shop*, along with the capability to capture sections of hi-res pictures or create entirely new *Print Shop* images, combining features found in both *The Print Shop Companion* and the *Graphics Libraries*.

The success of *The Print Shop* virtually guaranteed the arrival of "me-too" products on the market. One that bears notice, especially for its unique graphics libraries, is *PrintMaster* from Unison World. With the capability for printing greeting cards, banners, stationery, and signs, as well as calendars (*Print Shop* users must buy *The Print Shop Companion* in order to print calendars), *PrintMaster* gives you a lot. What is truly distinctive about *PrintMaster*, though, is the style of the artwork provided with the original program and in the separate graphics library, *PrintMaster Art Gallery I*. The drawings are less cartoony and more like book illustrations than most other graphics collections. In addition, some of them display an unusual sense of humor that really appeals to me. I like having a border made up of bare footprints. I smile at the image of a false nose and eyeglasses. (And I'm still trying to figure out what to do with a graphic of an elephant, caught in mid-boogie, wearing a T-shirt with "ROCK" written across it.)

Oh, and lest I forget, Apple users can load images from the flipside of the IBM-version *PrintMaster Art Gallery* disk into their edition of *The Print Shop*. Compatibility forever!

MAKING THE MOST OF THE NEWSROOM

The Print Shop is not the only best selling creativity tool to benefit from the availability of graphics libraries. *The Newsroom*, published by Springboard Software, is another big hit now being supported with extra picture power.

The Newsroom is an ingenious publishing system on a disk, allowing budding editors of all ages to create their own newspapers, complete with banners, headlines, stories, and pictures. The first *Clip Art Collection* for use with *The Newsroom* (the second is on the way as I write) delivers a whopping 600 more images. In my house, the *Clip Art* disk arrived in February, and it was immediately put to good use. As I started flipping through the images available, I had no particular project in mind. But like any of the clip art collections, just seeing all these images is inspirational. Before I knew it, a special Valentine's Day issue of a family newspaper was being created. I wrote a story and found an appropriate illustration. My nine-year-old son had no idea what to write, but got an idea as he "leafed" through the picture possibilities. By the time we were done, we had spent a pleasant computer-driven Saturday afternoon in the publishing busi-

ness, and our original creation got rave reviews from geographically distant grandparents.

YOUR WORDS WILL BE PICTURE PERFECT

Apple II and IBM owners can turn quite a few neat tricks with *Fontrix* from Data Transforms. Its primary claim to fame is its extraordinarily sharp, artistically formed text characters and fonts. This text can be printed out by itself, or combined with hi-res graphics for detailed pages. The other major innovation of *Fontrix* is the removal of a limitation: at last we can create graphics larger than our computer screens. Would you like to fill an 8½" x 11" sheet of paper with words and pictures? No problem. In fact, if you've always wanted to create a computer-graphic mural, you can do it in a single printout using *Fontrix*.

Our interest here, of course, is add-ons, and *Fontrix* would be far less interesting without its collection of *Fontpaks*. With 13 volumes to date that include everything from elegant typefaces and foreign-language alphabets to a complete Victorian-style townhouse, these library disks form a valuable graphics resource for artists and programmers at any skill level.

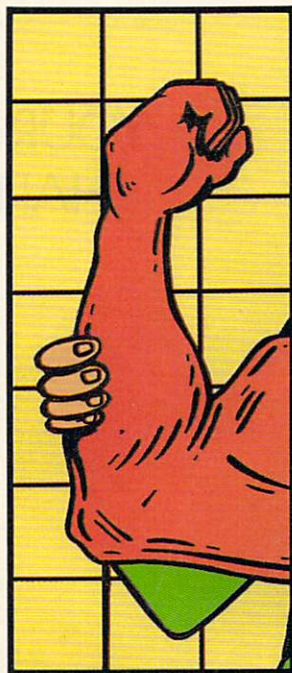
THE TRAFFIC MANAGER OF GRAPHICS ADD-ONS

A collection of 200 witty pictures from Beagle Bros, *Minipix* is add-on software with a twist. The graphics editor included with *Minipix* is an all-purpose resource that works as a sort of traffic manager for all your Apple graphics programs. The *Minipix* editor lets you take any *Print Shop* graphic—whether from *The Print Shop Graphics Library* series, the *PrintMaster Art Gallery*, the *Graphics Expander*, or *Minipix* itself—and use it in other graphics packages that work with standard Apple hi-res graphics, such as *Fontrix*, *Blazing Paddles*, *MousePaint*, and a host of others.

Want to reverse direction, and use any standard hi-res picture as a *Print Shop* graphic? Simple—just load it into the *Minipix* editor in standard format, then save it again as a *Print Shop* graphic. Images can be loaded, edited, and saved across any combination of formats this way (including shape tables for BASIC programmers). It's a neat trick that really expands the usefulness of any Apple graphics add-on.

NO END IN SIGHT

As baseball great Yogi Berra so sagely observed, "It ain't over 'til it's over." That's certainly the case with computer software today. Just when you think you've gotten all there is to get from a piece of software, someone comes along with an add-on package that brings new excitement to an old favorite. And now that software add-ons have proven their popularity, we can look forward to lots more souped-up software in the months and years to come. ☐



SMART SOFTWARE PUBLISHERS HAVE CAPTURED THE WORK OF TALENTED ARTISTS ON DISKS FILLED WITH GRAPHICS.

How to Throw the Best Birthday Party on Your Block!

YOUR COMPUTER CAN GET THE GROUP SINGING "HAPPY BIRTHDAY" AND PLAYING SIMON SAYS

BY ROBIN RASKIN



PHOTOGRAPHS BY JANET BELLER

The birthday girl, Kari, painting on "Mommy's 'puter invitation." Since we don't own any art software, I used the circle, square, and line capabilities of a business graph program to draw the party invitation. I wound up with a cute black-and-white printout begging for some young artist to splash color across it. Kari was happy to oblige, although I winced as my austere graphic was ravaged by her freewheelin' crayons!

The party guests have gone. All that remains are sticky ice cream bowls, mounds of wrapping paper, a cranky and overtired family, and a warm glow. The glow is from our computer. It's the only one still going strong.

We truly love our computer: it entertains us, teaches us, keeps us on budget, types our manuscripts, sings to us, and draws us pictures. So we felt we owed it the chance to do its "thing" at our daughter Kari's fourth birthday party.

The party was a gala affair with nine adorable 2-, 3-, and 4-year-olds; an IBM PCjr and a Columbia Data Systems Portable Computer; and an array of skeptical parents. It was also an introduction to computers for most of our young guests. The computers made party invitations, printed party favors, and led the chil-

dren in an old-fashioned game of Simon Says, supplementing the traditional birthday festivities with touches of cute, but high, technology.

I admit I was nervous before the party. My two daughters have grown up surrounded by computers and electronic gadgetry, but I wasn't sure how the rest of the guests would adjust to the computers' presence. (I remember one earnest conversation with a mother who told me computers were trendy and that a classical education was far superior. I usually try to keep my computer life and social life separate but equal.) However, the thought of introducing children to computers at a birthday party was too appealing. Either the children would delight in the computers, or go home and tell their folks about Kari's loony mom and dad!

As it turned out, I had no need to worry. Our little guests loved pressing the computers' keys and watching what happened. Kids don't mind the unfamiliar—at their age, everything is unfamiliar.

My husband Kaare and I decided not to use arcade-style games for our party entertainment. We figured the children would have plenty of opportunities to play those later. Instead, we home-brewed computer games to blend in with a traditional birthday party setting. Our birthday programs were created with these objectives in mind:

1. Make the kids laugh.
2. Make them use a keyboard.
3. Give them a computer souvenir.
4. Make them interact with each other, as well as the computer.
5. Show what a computer can do visually without requiring reading skills.

Here's how the party went:

THE BIRTHDAY GAME

Walking into a party is always a little unsettling. If you're 4 years old, the difficulty is compounded. From past birthday parties, I've found that kids need an "icebreaker" activity. It lets them know you acknowledge their presence and have planned accordingly. It also helps them get over the hurdle of their parents vanishing from the scene.

Our icebreaker was a "one-on-one" program Kaare wrote, called *The Birthday Game*. When the party started, we scanned the room for a likely first candidate, but the initial pandemonium was a bit unnerving. It seemed as if our guests were going to prefer playing with the pile of toys I'd neatly camouflaged in the corner to sitting patiently in front of a computer screen!

When the going gets tough, the tough go to the kitchen. I left Kaare, who handles rejection with more grace than I do, with the task of searching for a "computable" child. I busied myself with the food, feeling crushed and wondering if our hours of painstaking programming were all a big waste. "They're just too young," I muttered. "What would Mr. Rogers do?"

Slowly, an orderly chaos evolved. Kaare sat on a little three-legged stool, keyboard in hand, pressing keys and staring at the screen. I guess he looked odd enough, for the children soon took notice. As they gathered around, the scenario went something like this:

Kaare: Wanna play a game?

Child: (Nods and looks embarrassed.)

Kaare: Here, look at the television screen. It's hooked up to the computer. See what it says? It's asking for your name.

Child: (Nods and grins.)

Kaare: (Points out the words.) See? "What is your name?" Come and help me type in your name on this keyboard.

Child: (Extends one E.T.-like finger hesitantly.)
I peeked out of the kitchen and noticed



I show the birthday party guests how to have some computer fun (above). Afterwards, one of our guests, Jonah, shows me how to have some old-fashioned party fun (left).



Arli gets her personalized computer-generated message (left) while the other guests wait for their own (below).



HAPPY BIRTHDAY TO YOU—SING & PLAY ALONG

IBM PC & compatibles/Happy Birthday!

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Color/Graphics Monitor Adapter, w/Advanced BASIC A2.00, IBM PCjr w/128K RAM, w/Cartridge BASIC J1.00, Tandy 1000 w/GW-BASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67.) It should also work on many other PC compatibles.

```

10 DIM MONS(12):PLAY "MF"
20 FOR I=0 TO 11:READ MONS(I):NEXT I
30 SCREEN 1:WIDTH 80:KEY OFF:CLS:BEEP
40 PRINT "Parent: Please answer the following questions before"
50 PRINT "permitting children to use the program.":PRINT
60 PRINT "Do you wish to create printed party favors?"
70 PFS=INPUT$(1)
80 IF PFS<>"Y" AND PFS<>"y" AND PFS<>"N" AND PFS<>"n" THEN 70 ELSE PRINT PFS
90 IF PFS="Y" OR PFS="y" THEN PF=-1 ELSE PF=0
100 PRINT:PRINT "What is the current month?"
110 PRINT:INPUT "Please enter a number between 1 and 12";CM
120 IF CM<1 OR CM>12 THEN 110 ELSE CM=INT(CM)-1
130 PRINT:LINE INPUT "What is the birthday child's name? ";BC$
140 IF BC$="" THEN 130
150 IF LEN(BC$)>9 THEN PRINT "Please use a name with 9 letters or fewer.":GOTO 130
160 PRINT:PRINT "Thank you. The program is now ready for use by children."
170 PRINT:PRINT "Please press any key to begin."
180 K$=INKEY$:IF K$="" THEN 180
190 CLS:LOCATE 5,1
200 PRINT "Hello, I'd like to find out about you."
210 PRINT:LINE INPUT "What is your name? ";NAMS$
220 IF NAMS$="" THEN 210
230 IF LEN(NAMS$)>9 THEN PRINT "Please use a name with 9 letters or fewer.":GOTO 210
240 PRINT:INPUT "How old are you?";AGE
250 IF AGE<0 THEN 240 ELSE AGE=INT(AGE+.5)
260 GOSUB 1000:LOCATE 12,1
270 FOR I=0 TO 11
280 PRINT TAB(-(I/2<>INT(I/2))*20) USING "##";I+1;:PRINT " ";MONS(I);
290 NEXT I:PRINT
300 PRINT:PRINT "What month is your birthday?"
310 PRINT:INPUT "Please enter a number between 1 and 12";BMONTH
320 IF BMONTH<1 OR BMONTH>12 THEN 310 ELSE BMONTH=INT(BMONTH)-1
330 PRINT
340 IF BMONTH=CM THEN PRINT "Great, you have a birthday this month too!":GOTO 460
350 PRINT "Just these months left 'till YOUR birthday!"
360 PRINT
370 IF NOT PF THEN 400
380 LPRINT:LPRINT:LPRINT
390 LPRINT "Just these months left 'till YOUR birthday!":LPRINT
400 P=CM:SN=CM
410 FOR S=400 TO 400+(SN*20) STEP 20:SOUND S,2:NEXT S
420 PRINT MONS(P)
430 IF PF THEN LPRINT MONS(P)
440 P=(P+1) MOD 12:SN=SN+1
450 IF P<>BMONTH THEN FOR D=1 TO 500:NEXT D:GOTO 410
460 PRINT:PRINT:PRINT NAMS$; ", you are getting to be a big person!"
470 PRINT:PRINT "You will be";AGE+1;"years old on your next birthday."
480 PRINT
490 PRINT "Would you like to practice singing right now?"
500 SG$=INPUT$(1)

```

```

510 IF SG$<>"Y" AND SG$<>"y" AND SG$<>"N" AND SG$<>"n" THEN 500
520 IF SG$="N" OR SG$="n" THEN PRINT "Nope!":GOTO 560
530 PRINT "Yup!"
540 PLAY "t50p2cp4t90"
550 PLAY "c8c8dcfep4 c8c8dcgfp4 c8c8o5co4afedp4 b-8b-8afgf"
560 PRINT:PRINT "Thanks for playing and thanks for coming to my party!"
570 FOR D=1 TO 2000:NEXT D
580 IF NOT PF THEN 620
590 LPRINT:LPRINT:LPRINT
600 LPRINT "Thanks for coming to my party!"
610 LPRINT:LPRINT:LPRINT
620 NAMS$="Luv You":GOSUB 1000:IF NOT PF THEN 640
630 LPRINT:LPRINT:LPRINT
640 NAMS$=BC$:GOSUB 1000:IF NOT PF THEN 660
650 LPRINT:LPRINT:LPRINT
660 NAMS$="xxxxxx":GOSUB 1000
670 LOCATE 20,36:PRINT "THE END"
680 LOCATE 23,22:PRINT "Please press any key to begin again."
690 GOTO 180
1000 CLS:PRINT NAMS$
1010 FOR I=0 TO 7
1020 FOR J=0 TO 8*LEN(NAMS$)
1030 IF POINT(J,I) THEN PR$="#" ELSE PR$=" "
1040 PRINT PR$;
1050 IF PF THEN LPRINT PR$;
1060 NEXT J
1070 PRINT
1080 IF PF THEN LPRINT
1090 NEXT I
1100 LOCATE 1,1
1110 PRINT STRING$(LEN(NAMS$),32)
1120 RETURN
2000 DATA January,February,March,April,May,June,July
2010 DATA August,September,October,November,December

```

IBM PC & compatibles/Simon Says

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Color/Graphics Monitor Adapter or Monochrome Printer Card, w/Advanced BASIC A2.00, IBM PCjr w/Cartridge BASIC J1.00, Tandy 1000 w/GW-BASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67.) It should also work on many other PC compatibles.

```

10 DIM DS(13)
20 DS(0)="Place your hands on your tummy."
30 DS(1)="Tickle your toes."
40 DS(2)="Hug your best friend."
50 DS(3)="Tap the floor."
60 DS(4)="Wiggle your ears."
70 DS(5)="Shout your name."
80 DS(6)="Hop on one foot."
90 DS(7)="Scratch your chin."
100 DS(8)="Blink your eyes."
110 DS(9)="Clap your feet!"
120 DS(10)="Touch your nose."
130 DS(11)="Kiss your friend."
140 DS(12)="Laugh like a gigglepuss."
150 DS(13)="Yell HAPPY BIRTHDAY!"
160 CLS:KEY OFF:RANDOMIZE:CLS
170 PRINT "Does your computer have"
180 PRINT "color graphics capability?"
190 YN$=INPUT$(1)
200 IF YN$<>"Y" AND YN$<>"y" THEN 230
210 WIDTH 40:SCREEN 0,1
220 COLOR 15,INT(RND*6)+1
230 CLS
240 LOCATE 7,5:PRINT DS(INT(RND*14))
250 IF RND<.3 THEN PLAY "mf0l4co0b":GOTO 280
260 LOCATE 4,5:PRINT "SIMON SAYS ..."
270 PLAY "mf04l8cde"
280 K$=INKEY$:IF K$="" THEN 280
290 IF YN$="Y" OR YN$="y" THEN 220 ELSE 230

```


that some of the kids were watching the computing spectacle, while others were still poking around in their own little worlds. Very slowly, the child and Kaare spelled the name DANIELLE. Kaare spent a few minutes deleting all the extra characters she typed in, and then he said, "Press this big button to tell the computer that you're done."

By now the other kids were eager to try as well, and Kaare felt compelled to step up the pace. The computer asked for Danielle's age and her birthday, then responded to the input with the display: YOU ARE GETTING TO BE A BIG PERSON. ONLY THREE MORE MONTHS TIL YOUR BIRTHDAY. YOU WILL BE 5 YEARS OLD ON YOUR NEXT BIRTHDAY.

Kaare read this aloud to Danielle. She looked pleased. Even though it was Kari's birthday, the computer was acknowledging her special day. The printer began to crank out a special message with her name in big, easy-to-read block letters:

DANIELLE, JUST THESE MONTHS TO YOUR BIRTHDAY:
JULY, AUGUST, SEPTEMBER.

THANKS FOR COMING TO MY PARTY! LUV YOU, KARI.
XXXXXX

Danielle looked a bit puzzled and very much delighted. "Look what I got from the computer!" she exclaimed as she waved her party favor. One by one, on a "customized" level, the children were introduced to the computer.

My husband and I felt that *The Birthday Game* incorporated some important ideas. It gave each child some individual attention. It recognized the fact that they also have important birthdays. It asked them for information that most 3- and 4-year-olds can supply: name, age, and birthday. Of course, it's not the kind of program that they'd want to play again and again, but that wasn't our intent.

SIMON SAYS

After lunch was served, when our guests' bellies were full and they all appeared comfortable in their strange surroundings, we introduced our second program. Would nine toddlers be able to play a computer game? *Together?*

Simon Says was our test. The goal of the game is to distinguish the SIMON SAYS commands from commands without SIMON SAYS, and only obey the former. If you're caught obeying a command Simon didn't give, you're out of the game. We programmed the old party favorite with 14 commands, ranging from TOUCH YOUR NOSE to YELL HAPPY BIRTHDAY!

Each time "the leader" (a child) pressed any key on the keyboard, a randomly generated screen color and command were displayed. (The keyboard was passed around so each of the kids had a turn at being "the leader" and pressing a key.) Some of the screens displayed SIMON SAYS commands, while the others displayed commands without SIMON SAYS. Since 2- to 4-year-olds often have trouble distin-

SOME HELPFUL TIPS

Use this article as a springboard for your own party ideas. There are many simple, short programs available in back issues of FAMILY COMPUTING to help you get started. For example: *Musical Chairs* (March 1984), *Terminal Tale* (September 1985), or *Jitterman* (August 1985).

Once you have your party entertainment ready to go and the big day arrives, keep these things in mind:

1. Don't push the computer theme too hard; it'll sell itself in due time. Start with one or two interested youngsters. The others will heed the call.

2. Go with the flow. Our youngsters found *Simon Says* a little difficult, so I dropped the SIMON SAYS element from the game. The kids were less confused and just as happy. Incidentally, I awarded a prize (a jar of bubbles) to everyone.

3. Have somebody assist you. The computer games require your complete attention if the kids are to reap full advantage of them. Make sure you recruit some resilient grown-ups or older children to help out. (My thanks go to Granny, Grampy, Gayle, Michael, and Elaine.)

4. Put your computer in a safe place where it won't fall, and keep your disks out of harm's way.

5. Have backup disks of all your birthday programs. In addition, you should have some traditional birthday party entertainment planned in case everything fails.

guishing between the two, we used music to help them. When a SIMON SAYS command appeared on the screen, fast, high-pitched music played. When Simon did not say, a low, fog-horn tone sounded.

The game was a remarkable success. The kids hopped, jumped, and kissed each other with earnest fervor as I read the commands. Kids never tire of repetition. I know I tired of the game before they did!

We had prepared other computer goodies, but our crowd gave out. Sent into hyperactive sugar highs, we lost them to the more mundane activities of opening presents, playing with new toys, and jumping on couches.

MORE PARTIES

My husband and I were very pleased with the results of our computer experiments. Everyone pressed keys and followed commands. All were keenly aware of the computers, and, while they entertained, we hoped we'd also sneaked in a little computer confidence. And Kari's fourth birthday stood out as a special event. Now I've got only one problem: Our young guests want the computers at all of our parties! ☐



Anna wants to see her name in bright lights, too.

ROBIN RASKIN is a contributing editor for FAMILY COMPUTING. Her last piece, "Let's Go to Work!" appeared in the May issue.

HOW YOU CAN
MAKE DIFFERENT PROGRAMS
WORK WITH ONE ANOTHER
(And With Printers and Modems, Too)

Secrets of Computing Compatibility

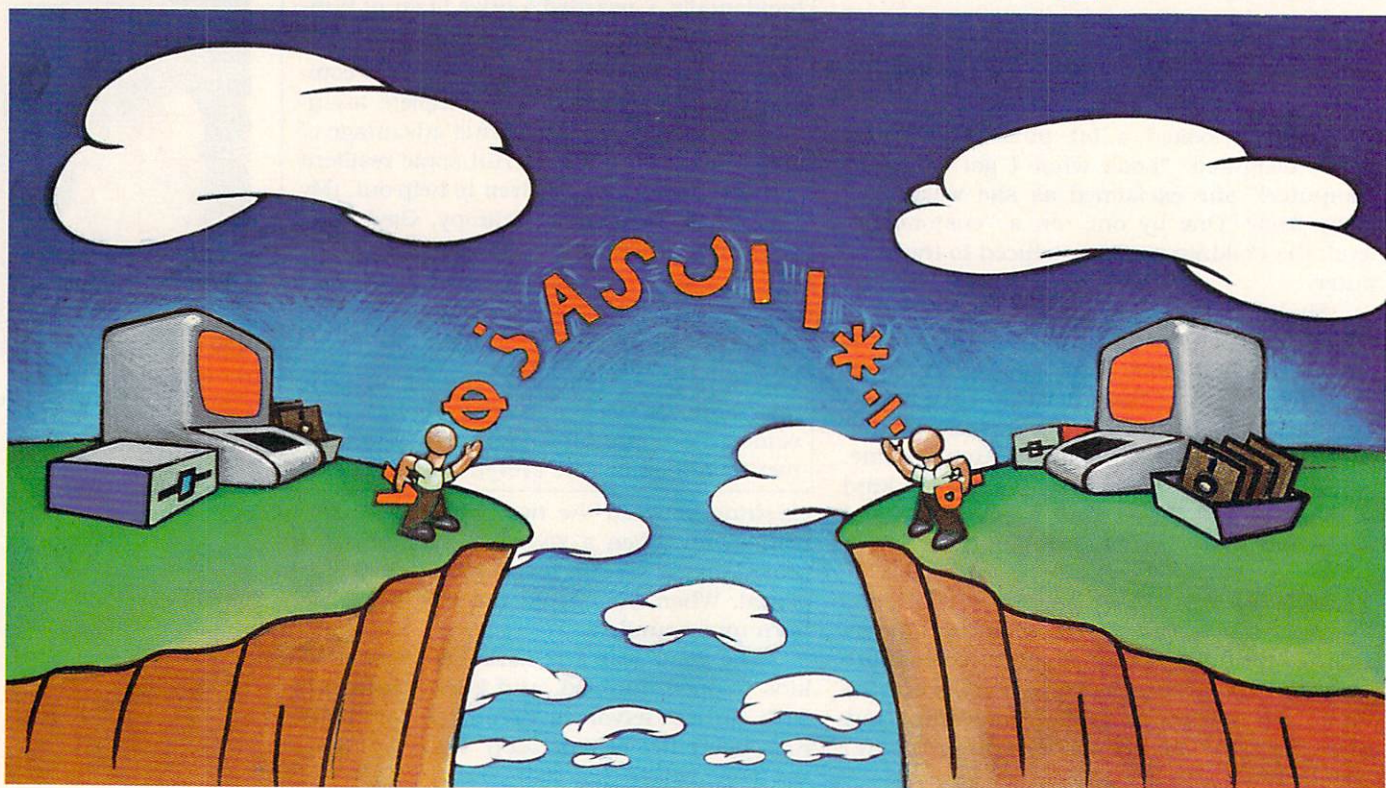


ILLUSTRATION BY BARTON STAHLER

BY DAVID HALLERMAN

I love it when I make my computer do what I want it to do: things like moving data from one program to another or making my printer perform its typeface tricks—that kind of stuff. It's when things don't work as they're supposed to that I become a bear, and my wife threatens to give me 297 bops on the head. So, to save my scalp, I've learned about the secrets of compatibility. Compatibility in computing, of course—among my programs, printer, and modem.

Compatibility is a major concern to everyone when putting together a computer system. Computing compatibility often appears elusive, something you can understand only after

you find answers to questions like: Which printer is compatible with my word processor? Will this word processor share data with my data base? How do I know if this business graphics package works with my spreadsheet? Who knows how to configure my communications program? Elusive, yet worth chasing, because once you figure it out, computing is more fun, or at the very least, less frustrating.

Unlike compatibility in love, there's no chemistry to computing compatibility. But there is a simple code that seems like a secret formula until you know how to decipher it. The code's name? ASCII (rhymes with passkey).

SAY HELLO TO ASCII

If you haven't come upon ASCII yet, let me introduce you to this bunch of characters who can help make your life a lot easier. ASCII stands for the American Standard Code for Information Interchange. Simply put, ASCII is a number code which represents every character—each letter, number, and symbol—on your computer keyboard. Computers treat text as a code because they work using numbers, not words.

ASCII weaves itself throughout computing. When you write with most word processors, you save your text onto disks in files known as ASCII text files. ASCII text files are often called ASCII files or text files and we'll use the terms interchangeably here. Data-base managers, spreadsheets, communications software, and other types of software also create and use ASCII files.

You also come across ASCII when using printers and modems. Before you can print in boldface, underline words, or use any other print feature, your printer must receive instructions coded in the correct ASCII form. Furthermore, you probably have to use ASCII code to set up communications software before using it to control your modem. Information coded as ASCII text will usually go back and forth across the telephone lines when you operate your modem.

Take a look at the ASCII Values chart accompanying this article. Don't worry. You'll never have to memorize these codes. But we'll show you how deciphering ASCII can be one of your best keys to computing compatibility.

SOME STANDARDS ARE MADE, OTHERS ARE BORN

Finding different ways of making your software work together may seem like going on a treasure hunt: Everybody looks for clues, but only the lucky ones win. Not true. More compatibility may be available than you think.

What makes it possible for two software packages to work together? Standards—those uniform "rules" recognized by all. Standards exist in many areas, from the competing video standards to standard sizes in clothing. Standards simplify, so the more often you can find them in the sometimes fragmented world of computers, the better off you'll be.

Computer standards are either made or they're born. When standards are made, they're created by a publisher who wants its line of software to work together. Examples of this are Broderbund Software's *Bank Street* series, which includes a word processor, data-base manager, spelling checker, and mailing program, and Microsoft's software line-up, which includes everything from word processing to communications software. Advantages? You know each application can share data with the other. Disadvantages? Each program in a series may not be of equal quality, or equally suited to your needs.

Even software from the same publisher that isn't part of a series may be compatible. For example, when I was planning my original computer purchases, I wanted my data base to be able to share information with my word processor. To make this compatibility certain, I bought *Apple Writer* and *Quick File*, both published by Apple Computer.

Standards that aren't made are born out of promulgation by a national organization, such as the American National Standards Institute (ANSI), the folks behind ASCII. You can make different programs from different publishers work together, sharing information, if both programs use the ASCII standard.

ASCII NOT WHAT VALUE IT HAS FOR YOU

Before buying any software, you should look through the package's documentation to discover if the program works with ASCII text files. *AppleWorks* (Apple Computer), for example, has a menu option that lets you save or use data in ASCII text files, making *AppleWorks* compatible with most communications software. This lets you take information that you've created with *AppleWorks* and send it to another brand of computer via modem without retyping the text.

ASCII can also come to your rescue if you want to move files from one brand of computer to another. Perhaps you just bought an IBM PC after years of writing with an Atari 800, and you want to move text from your old computer to the new one. If you've been writing with *AtariWriter* (Atari Corp.), your old files are ASCII text, so you will be able to transfer them across the incompatible-computer abyss—with the help of the proper software, cables, and/or modems. If your software produces non-ASCII files, you may need a special program to convert that non-ASCII text to standard ASCII.

TAKE CHARGE OF YOUR PRINTER

There's a saying as old as computing that goes, "Computers don't do what you want them to, only what you tell them to." Well, it's equally true for printers. You might want all of the fancy features your printer has to offer, but you need to know how to tell it to print in double-width, in compressed, or whatever.

Several programs need to be configured to your printer when you first use them; thus you need to know the correct codes before software and hardware can work together. As we said earlier, the codes are ASCII characters. With most printers, they are known as "Escape codes"—the ESCAPE key followed by certain other characters. These codes tell the printer when to start underlining or stop underlining, begin boldface or end boldface, and so on.

Here's what we mean: Your word processing documentation or your printer manual might mention printer codes in this obscure form, "27 66 03." (It's a bit primitive, but documentation like this still exists.) One look at the

UNLIKE COMPATIBILITY IN LOVE, THERE'S NO CHEMISTRY TO COMPUTING COMPATIBILITY. BUT THERE IS A SIMPLE CODE THAT SEEMS LIKE A SECRET FORMULA UNTIL YOU KNOW HOW TO DECIPHER IT.

DAVID HALLERMAN is reviews editor for FAMILY COMPUTING. He loves to unravel a good mystery.

HOW TO UNLOCK THE ASCII CODE

Spend some time perusing the ASCII Values chart. In truth, some of the biggest secrets of software compatibility are hidden in its code, one number for one character.

Every character within ASCII is coded to one of 256 numbers, ranging in value from 0 to 255. Different computers use the values from 128 to 255 in different ways, but most treat the values from 0 to 127 alike. Some ASCII characters denote letters or numerals, others denote punctuation or extra characters, like the equal sign or an asterisk. The first 32 values, counting from 0 to 31, represent control characters used to control programs, printers, or other devices. You type control characters by pressing the control key and the appropriate letter key at the same time.

An ASCII text file consisting of the words, "Hello R2D2" would be 10 numbers long: five for "Hello," four for "R2D2," and one for the space character in between. If you could see those 10 numbers in the file, their ASCII values would be 72, 101, 108, 108, 111, 32, 82, 50, 68, 50. For example, 72 is the uppercase "H" in "Hello," while 108 repeated twice represents the two lowercase "l"s. The space between the two words is treated as a character, the same as any letter of the alphabet, and has a value of 32.

Especially note that the two "2"s in "R2D2" are coded to the number 50, not the number 2, which is the code for "CONTROL-B." Also note that there are different values for each uppercase and each lowercase letter, which is how the computer tells them apart. And some characters have two keys, but only one value, such as "TAB" and "CONTROL-I" both being coded to number 9, or "ESCAPE" and "CONTROL-[" to 27.

NOTE TO COMMODORE USERS: In its varied implementations on different computers, ASCII is what FAMILY COMPUTING's technical department calls "sorta standard." The Commodore 64 and 128 computers employ ASCII with some differences. The variation is known as Pet ASCII, after the old Commodore Pet computers. While most of the punctuation and all of the numerals and uppercase letters share the same ASCII values as other computers, the values that represent lowercase letters on other computers stand for graphic symbols on a Commodore. (See the appendix in the "Commodore 64 User's Guide" that came with your computer for complete Pet ASCII values.)

ASCII VALUES

Char.	Value	Char.	Value	Char.	Value	Char.	Value
ctrl-@	0	space	32	@	64	,	96
ctrl-A	1	!	33	A	65	a	97
ctrl-B	2	"	34	B	66	b	98
ctrl-C	3	#	35	C	67	c	99
ctrl-D	4	\$	36	D	68	d	100
ctrl-E	5	%	37	E	69	e	101
ctrl-F	6	&	38	F	70	f	102
ctrl-G	7	'	39	G	71	g	103
ctrl-H	8	(	40	H	72	h	104
ctrl-I	9	)	41	I	73	i	105
ctrl-J	10	*	42	J	74	j	106
ctrl-K	11	+	43	K	75	k	107
ctrl-L	12	,	44	L	76	l	108
ctrl-M	13	.	45	M	77	m	109
ctrl-N	14	:	46	N	78	n	110
ctrl-O	15	/	47	O	79	o	111
ctrl-P	16	0	48	P	80	p	112
ctrl-Q	17	1	49	Q	81	q	113
ctrl-R	18	2	50	R	82	r	114
ctrl-S	19	3	51	S	83	s	115
ctrl-T	20	4	52	T	84	t	116
ctrl-U	21	5	53	U	85	u	117
ctrl-V	22	6	54	V	86	v	118
ctrl-W	23	7	55	W	87	w	119
ctrl-X	24	8	56	X	88	x	120
ctrl-Y	25	9	57	Y	89	y	121
ctrl-Z	26	:	58	Z	90	z	122
ctrl-[	27	;	59	[	91	{	123
ctrl-\	28	<	60	\	92	|	124
ctrl-]	29	=	61	]	93	}	125
ctrl-^	30	>	62	^	94	~	126
ctrl-~	31	?	63	_	95	delete	127

Additional control-character meanings: ctrl-H: Backspace; ctrl-I: Tab; ctrl-M: Return (Enter); ctrl-: Escape.
Feel free to make as many copies of this chart as you wish, and then keep it handy beside your computer.

ASCII chart, however, and you can see that 27 is the code for "ESCAPE," 66 for uppercase "B," and 03 means "CONTROL-C." Now it's easy to determine which keys to press to generate the code to make your software compatible with your printer. Once you uncover the mystery behind ASCII, you'll face no trepidation when configuring your software to your printer. You'll be the character in control.

THE ASCII KEY TO TELECOMPUTING

You should also be aware that ASCII codes are used in telecommunications. Knowing this, you can use telecommunications to get around the provincialism of incompatible computers.


Since most communications programs send and receive ASCII text files, you can send text from one incompatible computer to another, using an on-line service such as CompuServe or The Source as your way station for words. In addition, you can transfer ASCII text between two different computers—say an Apple and an IBM PC—by connecting their serial ports, joining them with what's called a null modem cable, and using communications software to control the transfer. Or, you can transfer ASCII text over phone lines using modems and communications software. Admittedly, these are not always the easiest procedures, but they can be done since ASCII is a standard.

A DIFFERENT BRAND OF ASCII

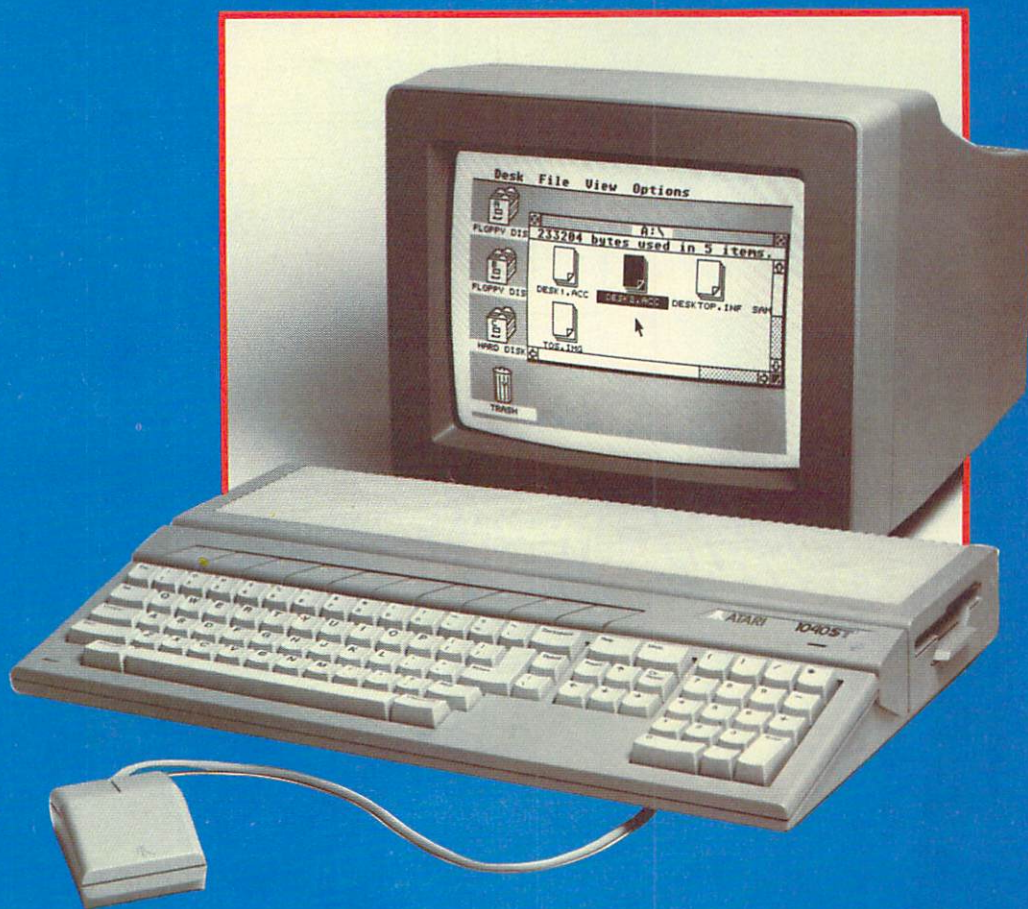
Then there are variations of ASCII that are standards in their own right. *VisiCalc* (Lotus Development Corp.), the first electronic spreadsheet, allows users to save data in files called "DIF"—Data Interchange Format. A DIF file is simply a specially structured ASCII text file. As the name indicates, DIF files let you share data from one program or computer to another. Its greatest use is in transferring data from spreadsheet to spreadsheet, or from spreadsheet to data base or graphics program. Since *VisiCalc*'s influence was almost unbounded back in the late seventies and early eighties, many software developers use DIF files for their own programs. That's why you can take a DIF file of numbers made with the *Multipan* (Microsoft Corp.) spreadsheet, for instance, and use it to create a pie chart with *B/Graph* (Batteries Included), a presentation graphics program—and neither package was published by the people who originally did *VisiCalc*, Software Arts.

Buying productivity software that works together or creates and uses standard file formats, such as ASCII, makes sense. The easier it is to exchange information, the more work you can get done with your computer.

By the way, when I get beyond the frustrations caused by the incompatibilities of balky computers and software, I'm really a honey bear.

Just ask my wife. 

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SPINNAKER

door to your office opens
and in walks Della,
smiling mysteriously.
"Looks to me like you had
yourself a female visitor
last night, Perry.
Entertaining a new
client?"

INFOCOM

You have:
no tea
a loose pile of junk mail
a toothbrush
a flathead screwdriver
your gown (being worn)
It looks like your gown contains:
pocket fluff

The vast yellow ships thunder across the sky, spreading waves of terror and panic in their wake. The voice of the Vagon Captain slans across the country, insisting that the planning charts and demolition orders have been available at the local planning office in Alpha Centauri for fifty years and it's too late to start making a fuss about it now.

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And it's no wonder that the leading software developers are excited by the power and speed of the ST Computers.

Stoneware®, for example, checked out the speed of the ST Disk Drive in data base applications and flipped. Instead of having to wait forever to manipulate data, thousands of records can be sorted in a fraction of the time that it takes on other computers. And instant responsiveness is the name of the game, not waiting.

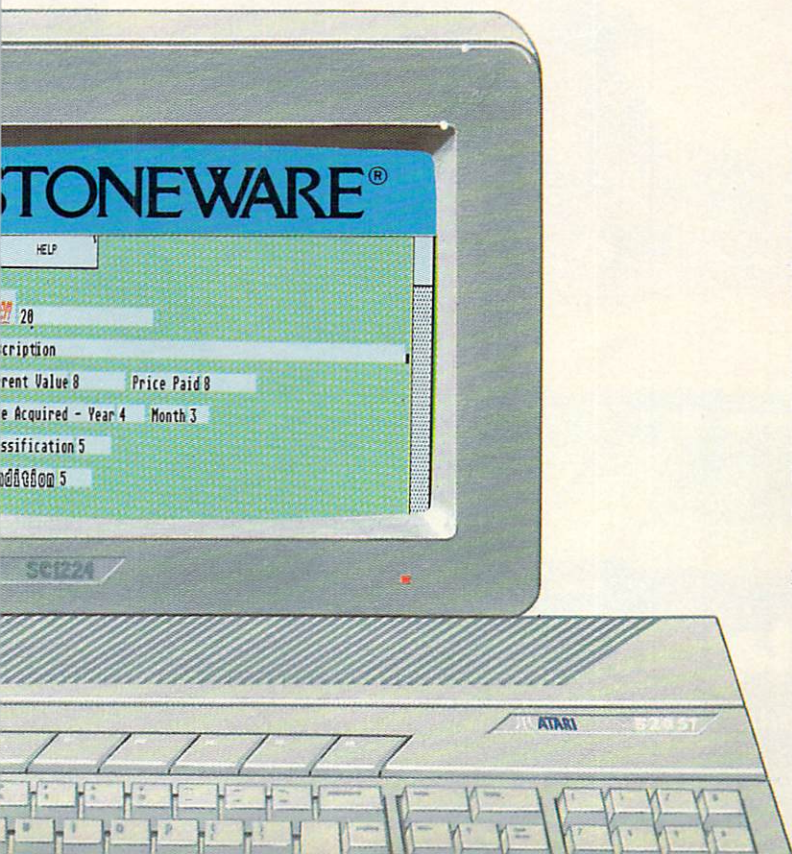
Sierra On-Line®, on the other hand, took one look at our incredible high speed, high resolution graphics and was ecstatic. The result is a whole series of games that are more realistic and lifelike than ever before.

For their needs, Activision® focused on the built-in MIDI ports for attaching synthesizers and other musical instruments. This enabled them to design the ultimate program for playing and composing music.

The list goes on and on. But a designer for Spinnaker® perhaps summed up the capabilities of the 520ST and the new 1040ST best:

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Day Three

I never believed in extraterrestrial life before this. But, judging from what I've seen, there are myriads of inhabited planets in the universe. Earth isn't the only world that's been plundered by the strange ship that brought me here.

The night sky is most curious. Nothing looks familiar. There are stars, but none I recognize. I hear the same story from others. Perhaps we're in another Solar System altogether!

I found out quickly that it's not good to wander around alone after dark. There are many lifeforms whose intentions are unquestionably evil. Fortunately, I had enough money to check into an Inn.



Day Ten

I picked up a cursed sword today and was in an awful state. I finally located the Thieves' Guild and, for a fee, they removed the curse.

One of the Guild members said my sword was very nice, but I didn't seem to have much fighting knowledge. He recommended I get some training at a Weapons School.



Day Fifteen

I'm glad I haven't lied to or cheated anyone since I've been here. Word gets around pretty fast. In a Tavern today, I spoke to another newcomer. He told me fantastic stories about his adventures here. I was taking it all in, when the Tavernkeeper called me to one side and cautioned me. He said the man was already known in The City as a liar and that I'd do well not to believe everything I was told. He said an honest man would prove himself.



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• Most of the above graphics from PrintMaster and Art Gallery I.

Printers supported on the IBM PC version:

Blue Chip; Citizen MSP-10, and MSP-20; C.Itoh Prowriter 8510, and Prowriter Jr.; Data Products SPG 8010-2, 8012, 8021, 8022, 8051, 8052, 8071 and 8072; EPSON FX, JX, LX, RX, LQ-1500, and MX with Graftrax; HP Think Jet; IBM Color Dot Matrix, Compact Thermal, Graphics Printer and ProPrinter; IDS Prism; Mannesmann Tally MT 85 and 86; NEC P2/P3 Pinwriter, 8023A and 8027; MPI Sprinter; Okidata 82A/83A with Okigraph 1, 84 (Step II), 92, 93, 182, 183, 192, 193, and Okimate 10 and 20; Panasonic KX-P 1090, 1091, 1092, and EP-1505; Star Gemini 10 and 15; Tandy CGP 220, DMP 105, 130, 200, 400 420, 430, 500, 2100, 2100P and 2200; TI 855; Toshiba 1340, 1350, 1351 and P351; Smith Corona D300.

Printers supported on the Apple version:

Apple Imagewriter and Scribe; C.Itoh Prowriter 8510; EPSON FX-80/100, RX-80/100, and MX-80 with Graftrax; Okidata 92 and 93; Star Gemini 10 and 15.

Printers supported on the Atari version:

C.Itoh Prowriter 8510; EPSON FX, RX, LQ-1500, and MX with Graftrax; IBM Graphics Printer; Okidata 82A/83A with Okigraph 1, 84 (Step II), 92 and 93; Star Gemini 10 and 15; Toshiba 1340, 1350, 1351, and P351.

Printers supported on the Commodore version:

C.Itoh Prowriter 8510 and Prowriter Jr.; Commodore VIC-1525 and MPS-801; EPSON FX, RX, and MX with Graftrax; Okidata 92, 93, 192, and Okimate 10; Star Gemini 10 and 15.

Printers supported on the CP/M version:

C.Itoh Prowriter 8510 and Prowriter Jr.; EPSON FX, RX, LQ-1500, and MX with Graftrax; IBM Graphics Printer; Okidata 82/83A with Okigraph 1, 92 and 93; Star Gemini 10 and 15; Tandy DMP 105, 130, 430, 2100, 2100P, and 2200; Toshiba 1340, 1350, 1351, and P351.

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Comparison Chart

Programs	PrintMaster (All versions)	The Print Shop Apple Commodore	The Print Shop IBM
Features			
Mixing fonts on one page	✓	NO	NO
Upper and lower case	✓	NO	✓
Preview of Design layout	✓	NO	✓
Calendar	✓	NO	NO
Hercules card (IBM only)	✓	NO	NO

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PrintMaster - CP/M	\$49.95
Art Gallery I - IBM PC, PCjr and compatibles	\$39.95
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>DRINK THE BEER

And the story responds:

YOU GET DRUNK AND HAVE A TERRIFIC TIME FOR TWELVE MINUTES, ARE THE LIFE AND SOUL OF THE PUB, THEY ALL CLAP YOU ON THE BACK

AND
TELL YOU
WHAT A GREAT
CHAP YOU ARE AND
THEN THE EARTH GETS
UNEXPECTEDLY DEMOLISHED. YOU
WAKE UP WITH A HANGOVER WHICH LASTS
FOR ALL ETERNITY. YOU HAVE DIED.

Suppose, on the other hand, you decide to:

>EXIT THE VILLAGE PUB THEN GO NORTH

In that case you'll be off on the most mind-bogglingly hilarious adventure any earthling ever had.

You communicate—and the story responds—in full sentences. So at every turn, you have literally thousands of alternatives. If you decide it might be wise, for instance, to wrap a towel around your head, just say so:

>WRAP THE TOWEL AROUND MY HEAD

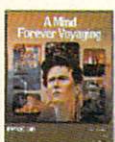
And the story responds:

THE RAVENOUS BUGBLATTER BEAST OF TRAL IS COMPLETELY BEWILDERED. IT IS SO DIM IT THINKS IF YOU CAN'T SEE IT, IT CAN'T SEE YOU.

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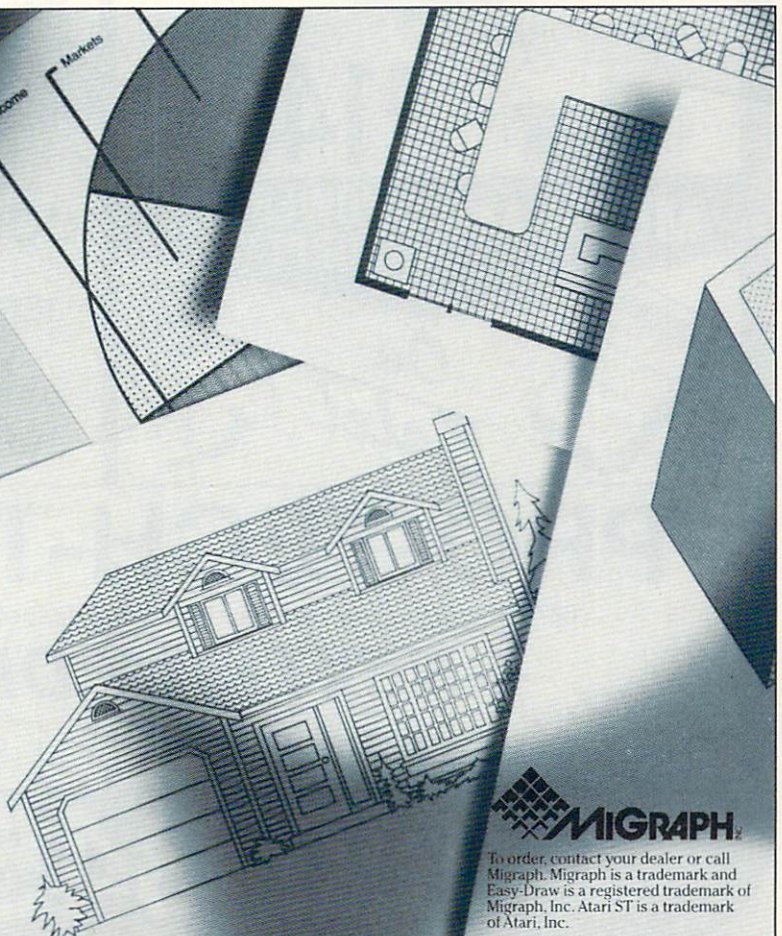
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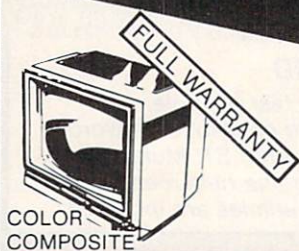
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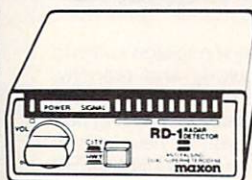
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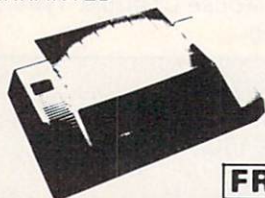
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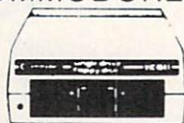
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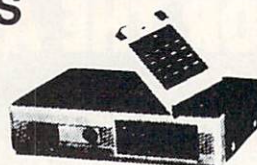


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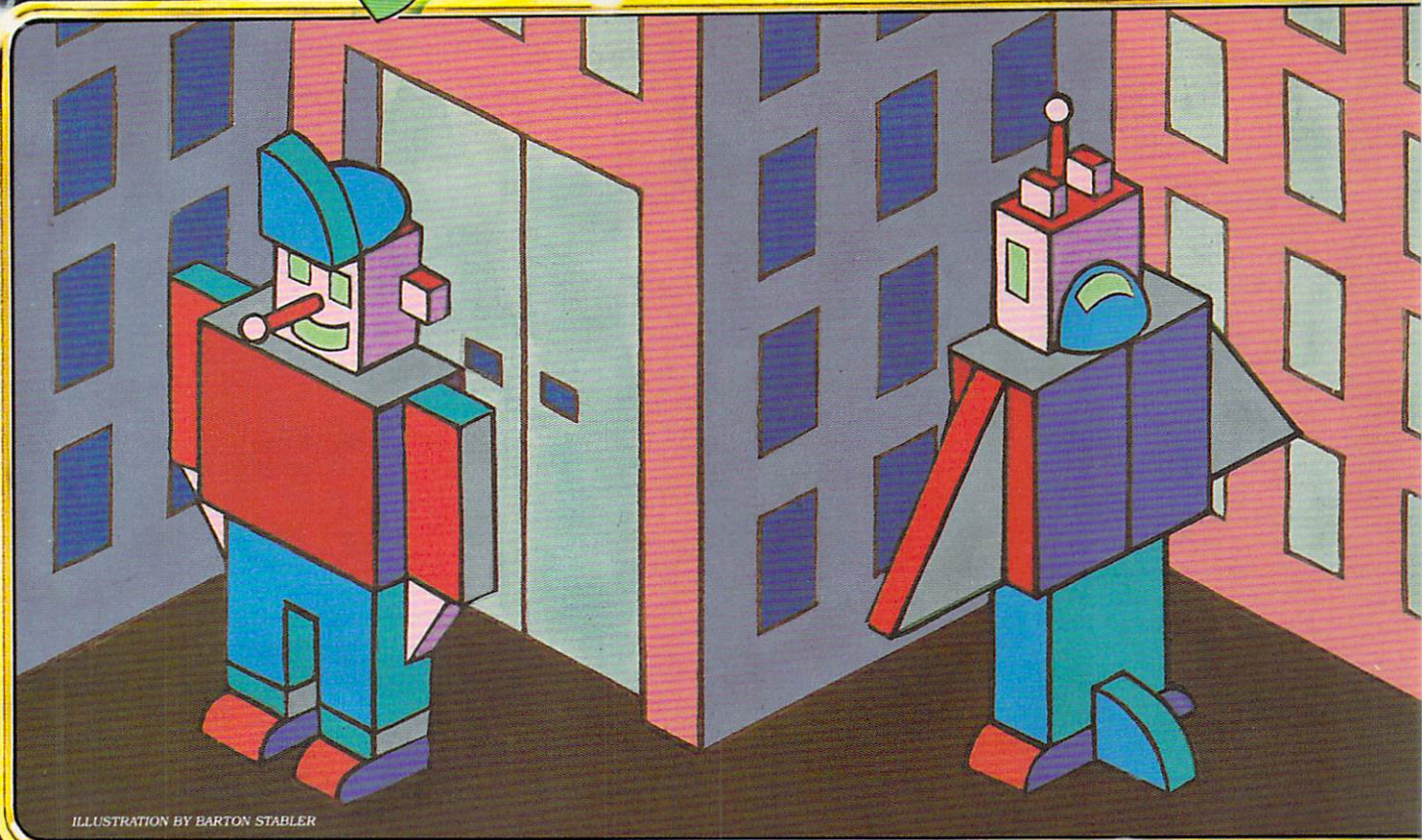


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<p>HOME HELPER PROGRAM Page 58</p> <p><i>All-Purpose Labelmaker</i> can handle most of your home labelmaking needs quickly and easily.</p>	<p>GRAPHICS PROGRAM Page 68</p> <p>Watch as <i>Transfobot</i>, the invincible robot hero, changes form at your command!</p>	<p>PUZZLE Page 70</p> <p>Put on your code caps and help poor Mort deliver on schedule! Includes special bonus Morse code translator program.</p>	<p>TIPS TO THE TYPIST Page 67</p> <p>MORE PROGRAMS: K-POWER Page 77</p> <p>HOW TO THROW THE BEST BIRTHDAY PARTY ON YOUR BLOCK Page 38</p>

ILLUSTRATION BY JAMES CHERRY III

ALL-PURPOSE LABELMAKER

BY JOEY LATIMER



We received quite a few letters from happy readers after running a program called *Disk Label Maker* in our June, 1984 issue. *Disk Label Maker* turned out to be useful in ways we hadn't imagined—mostly due to the ingenuity of readers who modified the original design to suit their special needs.

This month's Home Helper Program, *All-Purpose Labelmaker*, incorporates a few of the most popular enhancements into a program that can handle most of your spur-of-the-moment labelmaking needs quickly and easily. To use *All-Purpose Labelmaker*, you'll need a printer and continuous-form labels that are 3.5 inches wide by 1 inch long.

Start by typing *All-Purpose Labelmaker* into your computer, and saving it on disk or cassette. Before risking expensive labels, we advise you to test the program thoroughly using regular paper.

When you type RUN, *All-Purpose Labelmaker* will prompt you to enter the text you want printed on your label. Enter up to five lines of text, each

containing up to 30 characters (letters, numbers, spaces, and punctuation). Unless you have an IBM PC or compatible, a Tandy Model III/4, an Atari, or a Mac, don't use comma (,) or colons (:) when entering label text. Press RETURN or ENTER after typing in each line. If you want your label to have fewer than five lines of text, just press RETURN or ENTER alone to let the computer know you're done.

Next, you'll be asked how you want your label printed. Press the C key to center text between your label's margins, or the L key to align text with the label's left margin. Finally, make sure your printer is ready and press any key to begin printing.

If the program seems to be working correctly, replace the standard paper with labels and try again. You may have to adjust the position of the labels in your printer for the best alignment.

Note to TI-99/4A owners: If you wish to use *All-Purpose Labelmaker* with a serial printer, change line 430 to read:

```
430 OPEN #1:"RS232"
```

Adam/*All-Purpose Labelmaker*

```
10 DIM L$(5)
20 HOME
30 PRINT TAB(5);"ALL-PURPOSE LABELMAKER"
40 PRINT
50 PRINT "You can print up to five"
60 PRINT "lines on each label."
70 PRINT
80 PRINT "For each line, type up to 30"
```

```
90 PRINT "characters and press <RETURN>,"
100 PRINT "or just press <RETURN> if done."
110 PRINT
120 LN = 1
130 PRINT "Line #";LN
140 PRINT TAB(2);"-----"
150 INPUT " ";L$(LN)
160 IF L$(LN) = "" THEN 250
170 IF LEN(L$(LN)) <= 30 THEN 230
180 PRINT
190 PRINT "That line was too long."
200 PRINT "Please try again."
210 PRINT
220 GOTO 130
230 LN = LN+1
240 IF LN < 6 THEN PRINT:GOTO 130
250 HOME
260 PRINT "Do you want this label"
270 PRINT
280 PRINT "<c>entered, or"
290 PRINT "<l>left-justified?";
300 GET C$
310 IF C$ <> "C" AND C$ <> "c" AND C$ <> "L" AND C$ <> "l" THEN 300
320 PRINT
330 PRINT
340 PRINT "When your printer is ready,"
350 PRINT "please press any key.";
360 GET K$
370 PRINT
380 PR# 1
390 FOR I = 1 TO 6
400 IF I >= LN THEN PRINT:GOTO 430
410 IF C$ = "C" OR C$ = "c" THEN PRINT SPC(15-LEN(L$(I))/2);
420 PRINT L$(I)
430 NEXT I
440 PR# 0
450 HOME
460 PRINT "Would you like to"
470 PRINT
480 PRINT "<p>print this label again,"
490 PRINT "<c>compose another label, or"
500 PRINT "<q>quit?";
510 GET K$
520 IF K$ = "P" OR K$ = "p" THEN 250
530 IF K$ = "C" OR K$ = "c" THEN 20
540 IF K$ <> "Q" AND K$ <> "q" THEN 510
```

Apple II series w/printer/*All-Purpose Labelmaker*

```
10 DIM L$(5)
20 HOME
30 PRINT TAB(9);"ALL-PURPOSE LABELMAKER"
40 PRINT
50 PRINT "YOU CAN PRINT UP TO FIVE LINES"
60 PRINT "ON EACH LABEL."
70 PRINT
80 PRINT "FOR EACH LINE, TYPE UP TO 30"
90 PRINT "CHARACTERS AND PRESS <RETURN>,"
100 PRINT "OR JUST PRESS <RETURN> WHEN DONE."
110 PRINT
120 LN = 1
130 PRINT TAB(10);"-----"
140 PRINT "LINE #";LN;
150 INPUT " ";L$(LN)
160 IF L$(LN) = "" THEN 250
170 IF LEN(L$(LN)) <= 30 THEN 230
180 PRINT
190 PRINT "THAT LINE WAS TOO LONG."
200 PRINT "PLEASE TRY AGAIN."
210 PRINT
220 GOTO 130
230 LN = LN+1
240 IF LN < 6 THEN 130
250 HOME
260 PRINT "DO YOU WANT THIS LABEL"
270 PRINT
```



```

280 PRINT "<C>ENTERED, OR"
290 PRINT "<L>EFT-JUSTIFIED?";
300 GET CNS
310 IF CNS <> "C" AND CNS <> CHR$(99) AND CNS <> "L" A
ND CNS <> CHR$(108) THEN 300
320 PRINT
330 PRINT
340 PRINT "WHEN YOUR PRINTER IS READY,"
350 PRINT "PLEASE PRESS ANY KEY.";
360 GET K$
370 PRINT
380 PRINT CHR$(4);"PR#1"
390 FOR I = 1 TO 6
400 IF I >= LN THEN PRINT:GOTO 430
410 IF CNS = "C" AND CNS <> CHR$(99) THEN PRINT SPC(15
-LEN(L$(I))/2);
420 PRINT L$(I)
430 NEXT I
440 PRINT CHR$(4);"PR#0"
450 HOME
460 PRINT "WOULD YOU LIKE TO"
470 PRINT
480 PRINT "<P>RINT THIS LABEL AGAIN,"
490 PRINT "<C>OMPOSE ANOTHER LABEL, OR"
500 PRINT "<Q>UIT?";
510 GET K$
520 IF K$ = "P" OR K$ = CHR$(112) THEN 250
530 IF K$ = "C" OR K$ = CHR$(99) THEN 20
540 IF K$ <> "Q" AND K$ <> CHR$(113) THEN 510

```

Atari 400/800, 600/800XL, 130XE w/prINTER/All-Purpose Labelmaker

```

10 DIM TS(31),SP$(30),D$(30),L$(150),LL(5)
20 OPEN #1,4,0,"K:"
30 FOR I=1 TO 150
40 L$(I)=CHR$(32)
50 IF I<31 THEN D$(I)=CHR$(45)
60 NEXT I
70 SP$=L$(1,30)
80 POKE 82,0
90 PRINT CHR$(125)
100 POSITION 8,0
110 PRINT "ALL-PURPOSE LABELMAKER"
120 PRINT
130 PRINT "YOU CAN PRINT UP TO FIVE LINES"
140 PRINT "ON EACH LABEL."
150 PRINT
160 PRINT "FOR EACH LINE, TYPE UP TO 30"
170 PRINT "CHARACTERS AND PRESS <RETURN>,"
180 PRINT "OR JUST PRESS <RETURN> WHEN DONE."
190 PRINT
200 LN=1
210 PRINT SP$(1,9);D$
220 PRINT "LINE #";LN;" ";
230 INPUT TS
240 IF TS="" THEN 350
250 IF LEN(TS)<=30 THEN 310
260 PRINT
270 PRINT "THAT LINE WAS TOO LONG."
280 PRINT "PLEASE TRY AGAIN."
290 PRINT
300 GOTO 210
310 L$(LN*30-29,LN*30)=TS
320 LL(LN)=LEN(TS)
330 LN=LN+1
340 IF LN<6 THEN 210
350 PRINT CHR$(125);
360 PRINT "DO YOU WANT THIS LABEL"
370 PRINT
380 PRINT "<C>ENTERED, OR"
390 PRINT "<L>EFT-JUSTIFIED?";
400 GET #1,CN
410 IF CN<>ASC("C") AND CN<>ASC("c") AND CN<>ASC("L")
AND CN<>ASC("l") THEN 400
420 PRINT
430 PRINT
440 PRINT "WHEN YOUR PRINTER IS READY,"

```

```

450 PRINT "PLEASE PRESS ANY KEY.";
460 GET #1,K
470 OPEN #2,8,0,"P:"
480 FOR I=1 TO 6
490 IF I=LN THEN PRINT #2:GOTO 530
500 IF CN<>ASC("C") AND CN<>ASC("c") THEN 520
510 TB=15-LL(I)/2:IF TB>=1 THEN PRINT #2;SP$(1,TB);
520 PRINT #2;L$(I*30-29,(I-1)*30+LL(I))
530 NEXT I
540 CLOSE #2
550 PRINT CHR$(125);
560 PRINT "WOULD YOU LIKE TO"
570 PRINT
580 PRINT "<P>RINT THIS LABEL AGAIN,"
590 PRINT "<C>OMPOSE ANOTHER LABEL, OR"
600 PRINT "<Q>UIT?";
610 GET #1,K
620 IF K=ASC("P") OR K=ASC("p") THEN 350
630 IF K=ASC("C") OR K=ASC("c") THEN 90
640 IF K<>ASC("Q") AND K<>ASC("q") THEN 610
650 CLOSE #1:POKE 82,2

```

Commodore 64 & 128 (C 64 mode) w/prINTER/All-Purpose Labelmaker

```

10 DIM L$(5)
20 PRINT CHR$(147);
30 PRINT TAB(9);"ALL-PURPOSE LABELMAKER"
40 PRINT
50 PRINT "YOU CAN PRINT UP TO FIVE LINES"
60 PRINT "ON EACH LABEL."
70 PRINT
80 PRINT "FOR EACH LINE, TYPE UP TO 30"
90 PRINT "CHARACTERS AND PRESS <RETURN>,"
100 PRINT "OR JUST PRESS <RETURN> WHEN DONE."
110 PRINT
120 LN=1
130 PRINT TAB(9);"-----"
140 PRINT "LINE #";CHR$(LN+48);
150 L$(LN)="" : INPUT L$(LN)
160 IF L$(LN)="" THEN 250
170 IF LEN(L$(LN))<=30 THEN 230
180 PRINT
190 PRINT "THAT LINE WAS TOO LONG."
200 PRINT "PLEASE TRY AGAIN."
210 PRINT
220 GOTO 130
230 LN=LN+1
240 IF LN<6 THEN 130
250 PRINT CHR$(147);
260 PRINT "DO YOU WANT THIS LABEL"
270 PRINT
280 PRINT "<C>ENTERED, OR"
290 PRINT "<L>EFT-JUSTIFIED?"
300 GET CNS
310 IF CNS<>"C" AND CNS<>"L" THEN 300
320 PRINT
330 PRINT "WHEN YOUR PRINTER IS READY,"
340 PRINT "PLEASE PRESS ANY KEY."
350 GET K$
360 IF K$="" THEN 350
370 OPEN #4,4
380 FOR I=1 TO 5
390 IF I=LN THEN PRINT#4:GOTO 420
400 IF CNS="C" THEN PRINT#4,SPC(15-LEN(L$(I))/2);
410 PRINT#4,L$(I)
420 NEXT I
430 PRINT#4
440 CLOSE #4
450 PRINT CHR$(147);
460 PRINT "WOULD YOU LIKE TO"
470 PRINT
480 PRINT "<P>RINT THIS LABEL AGAIN,"
490 PRINT "<C>OMPOSE ANOTHER LABEL, OR"
500 PRINT "<Q>UIT?"
510 GET K$
520 IF K$="P" THEN 250
530 IF K$="C" THEN 20
540 IF K$<>"Q" THEN 510

```


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* C128 DOUBLE SIDED DISKS 79¢ EA.

Get these 5 1/4" Double Sided Floppy Disks specially designed for the Commodore 128 Computer (1571 Disk Drive), 100% Certified, **Lifetime Warranty**, Automatic Lint Cleaning Liner included. 1 Box of 10 - \$9.90 (99¢ ea.), 5 Boxes of 10 - \$44.50 (89¢ ea.), 10 Boxes of 10 - \$79.00 (79¢ ea.).

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You pay only \$149.95 when you order this 14" COLOR MONITOR. LESS the value of the SPECIAL SOFTWARE DISCOUNT COUPON we pack with your monitor that allows you to save over \$250 off software sale prices!! With only \$100 of savings applied, your net color monitor cost is only \$49.95. (16 Colors).

Premium Quality 120-140 CPS Comstar 10X Printer \$148.00

The COMSTAR 10X gives you a 10" carriage, 120-140 CPS, 9 x 9 dot matrix with double strike capability for 18 x 18 dot matrix (near letter quality), high resolution bit image (120 x 144 dot matrix), underlining, back spacing, left and right margin setting, true lower decenders with super and subscripts, prints standard, italic, block graphics and special characters. It gives you print quality and features found on printers costing twice as much!! (Centronics Parallel Interface) List \$399.00 **Sale \$148.00.**

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Now you program 80 COLUMNS on the screen at one time! Converts your Commodore 64 to 80 COLUMNS when you plug in the 80 COLUMN EXPANSION BOARD!! PLUS 4 slot expander! **Limited Quantities. Sale \$49.95. Coupon \$39.95**

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This PAPERBOCK WRITER 64 WORD PROCESSOR is the finest available for the COMMODORE 64 computer! The ULTIMATE FOR PROFESSIONAL Word Processing. DISPLAYS 40 or 80 COLUMNS IN COLOR or black and white! Simple to operate, powerful text editing, complete cursor and insert/delete key controls line and paragraph insertion, automatic deletion, centering, margin settings and output to all printers! List \$99.00. **SALE \$39.95. Coupon \$29.95.**

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Commodore 64 Plus \$30.00 S&H

Com. 1541
Disk Drive \$457
14" Color
Monitor

**PLUS FREE \$49.95 Oil Barons
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We pack a **SPECIAL SOFTWARE DISCOUNT COUPON** with every **COMMODORE 64 COMPUTER, DISK DRIVE, PRINTER, or MONITOR** we sell! This coupon allows you to **SAVE OVER \$250 OFF SALE PRICES!!**

(Examples)

PROFESSIONAL SOFTWARE COMMODORE 64

Name	List	Sale	Coupon
PaperClip	\$89.95	\$34.95	\$29.95
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Leader Board	\$39.95	\$24.95	\$22.95
The Print Shop	\$44.95	\$27.95	\$26.95
Halley's Project	\$39.95	\$22.95	\$19.95
Practicalc (spread sheet)	\$59.95	\$19.95	\$14.95
Voice Command Module	\$79.95	\$39.95	\$34.95
Nine Princes in Amber	\$32.95	\$24.95	\$21.95
Super Bowl Sunday	\$35.00	\$22.95	\$19.95
Flip and File Disk Filer	\$24.95	\$14.95	\$12.95
Pro Joy Stick	\$19.95	\$12.95	\$10.00
PartyWare	\$19.95	\$14.95	\$11.95
Dust Cover	\$ 8.95	\$ 6.95	\$ 4.60
Financial Planner	\$59.95	\$38.95	\$35.95
Sylvia Porter	\$29.95	\$18.95	\$16.95
Hardball	\$29.95	\$18.95	\$16.95
C64 Troubleshoot & Repair Guide	\$24.95	\$15.95	\$12.95

(See over 100 coupon items in our catalog)

**Write or call for
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ATTENTION Computer Clubs We Offer Big Volume Discounts CALL TODAY!

PROTECTO WARRANTY

All Protecto's products carry a minimum 90 day warranty. If anything fails within 90 days from the date of purchase, simply send your product to us via United Parcel Service prepaid. We will IMMEDIATELY send you a replacement at no charge via United Parcel Service prepaid. This warranty proves once again that **We Love Our Customers.**

C128 COMMODORE COMPUTER

(Order Now)

* \$229⁰⁵ (SEE BELOW)

With \$59.95 Timeworks Wordwriter Wordprocessor savings applied

- 340K 1571 Disk Drive \$259.00
- Voice Synthesizer \$39.95
- 12" Monitor \$79.95

PRICES MAY BE LOWER

* C128 COMMODORE COMPUTER \$289.00

You pay only \$289.00 for the C128 computer and we include the C128 Wordwriter Wordprocessor by Timeworks (Sale \$59.95). Thus, your net cost for the C128 computer is only \$229.05. List \$349.00. **SALE \$289.00.**

340K 1571 COMMODORE DISK DRIVE \$259.00

Double Sided, Single Disk Drive for C-128 allows you to use C-128 mode plus CPM mode. 17 times faster than 1541, plus runs all 1541 formats. List \$349.00. **Sale \$259.00.**

SUPER AUTO DIAL MODEM \$29.95

Easy to use. Just plug into your Commodore 64 computer and you're ready to transmit and receive messages. Easier to use than dialing your telephone, just push one key on your computer! Includes exclusive easy to use program for up and down loading to printer and disk drives. **Best In U.S.A. List \$99.00. SALE \$29.95. Coupon \$24.95.**

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For Commodore-64 computers. Just plug it in and you can program words and sentences, adjust volume and pitch, make talking adventure games, sound action games and customized talkies!! PLUS (\$19.95 value) TEXT TO SPEECH program included FREE, just type a word and hear your computer talk — ADD SOUND TO "ZORK", SCOTT ADAMS AND OTHER ADVENTURE GAMES!! (Disk or tape.) List \$89.00. **SALE \$39.95**

12" MAGNAVOX (NAP) 80 COLUMN MONITOR WITH SOUND \$79.95

Super High Resolution green screen monitor. 80 columns x 24 lines, easy to read, plus speaker for audio sound included. Fantastic value. List \$129.00. **Sale \$79.95.** (C128 cable \$19.95. C64, Atari cable \$9.95)

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"JUKI" Superb letter quality, daisy wheel printer/typewriter combination. Two machines in one — just a flick of the switch. 12" extra large carriage, typewriter keyboard, automatic margin control and relocate key, drop in cassette ribbon! (90 day warranty) centronics parallel or RS232 serial port built in (Specify). List \$349.00. **SALE \$229.95.** (Ltd. Qty.)

14" RGB & COMPOSITE COLOR MONITOR \$259.95

Must be used to get 80 columns in color with 80 column computers (C128 - IBM - Apple). (RGB Cable \$19.95) Add \$14.50 shipping. List \$399.00. **SALE \$259.95.**

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Add \$10.00 for shipping, handling and insurance. Illinois residents please add 6 1/4% tax. Add \$20.00 for CANADA, PUERTO RICO, HAWAII, ALASKA, APO-FPO orders. Canadian orders must be in U.S. dollars. WE DO NOT EXPORT TO OTHER COUNTRIES, EXCEPT CANADA. Enclose Cashier Check, Money Order or Personal Check. Allow 14 days for delivery. 2 to 7 days for phone orders, 1 day express mail! Prices & Availability subject to change without notice. VISA — MASTER CARD — C.O.D. No. C.O.D. to Canada, APO-FPO

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- For Small Business Computers
- Apple - Commodore - Atari - Aplus 3000 -etc.
- One Year Free Immediate Replacement Warranty*



(Premium Quality)

- Beautiful Color Contrast
- High Resolution
- Sharp Clear Text
- Anti-Glare Screen
- 40 Columns x 24 Lines
- Front Panel Controls

List \$329⁰⁰



14" Color Computer Monitor*

*C64/Atari composite cable \$9.95

* C128 RGB/Composite 80 column cable \$19.95.

Sale \$149⁹⁵*

Add \$14.50 Shipping

List \$399.00 **Sale \$259⁹⁵***

14" RGB & COMPOSITE COLOR MONITOR

Allows use of C-128 and C64 mode - composite and 80 column RGB mode. Must be used to get 80 columns in color with 80 column computers. Specially designed for use with the C128's special composite video output, plus green screen only option switch. (add \$14.50 shipping)

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Super high resolution composite green or amber screen monitor. 80 columns x 24 lines, easy to read. Fantastic value. Limited Quantities.

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Add \$10.00 for shipping, handling and insurance. Illinois residents please add 6 1/4 % tax. Monitors must be shipped to Continental U.S. Only. WE DO NOT EXPORT TO OTHER COUNTRIES. Enclose Cashier Check, Money Order or Personal Check. Allow 14 days for delivery, 2 to 7 days for phone orders, 1 day express mail! Prices & Availability subject to change without notice.
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240K Apple® Compatible Computer System

NEW

SALE

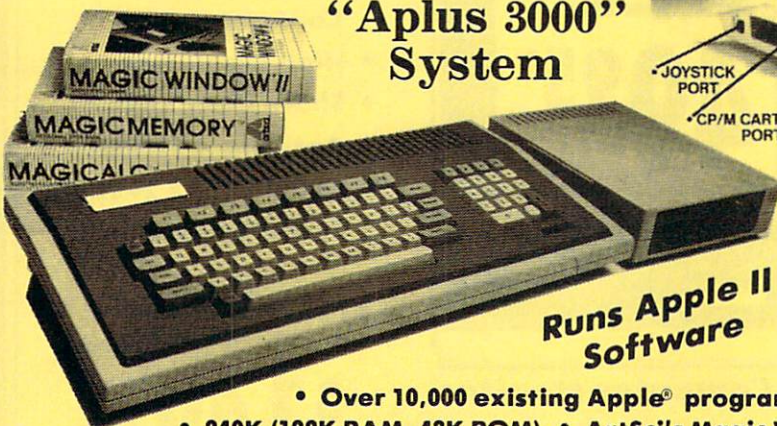
Aplus 3000 computer system includes 192K RAM, 48K ROM (32K Microsoft Basic plus 16K ROM Emulator), 160K Laser 5 1/4" Disk Drive (Runs Apple II Software), Magic Window Wordprocessor, MagiCalc spreadsheet, Magic Memory Database. All for only \$399.00

Complete System

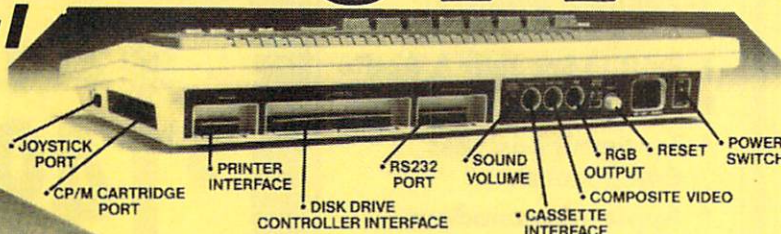
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"Aplus 3000" System



Runs Apple II Software



Double Immediate Replacement Warranty

If any of the Aplus 3000 computer system equipment fails due to faulty workmanship or material within 180 days of purchase we will REPLACE it immediately with no service charge!!

- Over 10,000 existing Apple® programs
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- 160K Laser 5 1/4" Disk Drive (Runs Apple II software)
- Centronics printer interface included
- RGB (80 columns in color) and composite included

SPECIFICATIONS

A plus 3000 is a complete, self-contained computer based on the popular 6502A microprocessor and can tap into the tremendous software library of Apple II. Features include 192K Bytes RAM, 32KB Enhanced Microsoft BASIC, 80 column text, 560H X 192V color graphic display, 81 key sculptured keyboard and high efficiency switching power supply. Also included as standard are Centronics bus printer interface, Cassette interface, 4 channel sound generator, and 5 1/4" Apple Compatible Disk Drive.

• TEXT

- 40 columns X 24 rows or 80 columns X 24 rows software selectable.
- 5 X 7 characters in 7 X 8 matrix.
- Upper and lower case characters.
- One of Eight colors for characters/graphics and background, Red, Green, Blue, Cyan, Magenta, Yellow, Black and White.
- Character set with normal, inverse and flashing capabilities.

• GRAPHICS

- 280H X 192V 6 colors — Black, White, Violet, Green, Blue, Orange.
- 280H X 192V 8 colors bit image — Black, White, Red, Green, Blue, Cyan, Magenta, Yellow.
- 560H X 192V 6 colors — Black, White, Violet, Green, Blue, Orange. (High resolution color monitor required)

Super Apple Compatible Disk Drive Sale \$149.95.

Quieter, Cooler, Better Disk Drives for your Apple II plus, IIe, IIc (specify when ordering). List \$299.95. Sale \$149.95.

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Add \$25.00 for shipping and handling!!

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More Features than Apple® for less than Commodore®

Features	Aplus 3000	Apple IIe	Commodore C-128
RAM	192K	64K	128K
Runs Apple II Software	Yes	Yes	No
Function Keys	24	None	16
4 Voice, 6 Octave Sound	Yes	No	Yes
Composite Video	Yes	Yes	Yes
Disk Drive	Included	Extra Cost	Extra Cost
Numeric Keypad	Included	Extra Cost	Included
Video Cable	Included	Extra Cost	Extra Cost
RGB Color Card	Included	Extra Cost	Included
80 Column Card	Included	Extra Cost	Included
Centronics Printer Interface	Included	Extra Cost	Extra Cost
Drive Controller	Included	Extra Cost	Included
\$150 Wordprocessor (Magic Window)	Included	Extra Cost	Extra Cost
\$150 Spreadsheet (MagiCalc)	Included	Extra Cost	Extra Cost
\$60 Database prg. (Magic Memory)	Included	Extra Cost	Extra Cost
Your Cost	\$399.00	\$1745.00	\$1117.90

ACCESSORIES

	LIST	SALE
2nd Disk Drive	\$299.95	\$149.95
2 professional analog joysticks	\$ 39.95	\$ 24.95
Z-80 cart. allows CP/M use	\$ 99.95	\$ 59.95
RS232 adapter	\$ 99.95	\$ 59.95
R/F Modulator (TV hookup)	\$ 29.95	\$ 19.95
RGB cable (RGB Monitor hookup)	\$ 24.95	\$ 19.95
Centronics cable (for Centronics printer)	\$ 34.95	\$ 24.95
Technical reference manual	\$ 29.95	\$ 19.95
80 columns Hi-Res Green Monitor	\$199.00	\$ 79.95
80 column Hi-Res RGB Monitor	\$399.00	\$259.00

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CIRCLE READER SERVICE 39



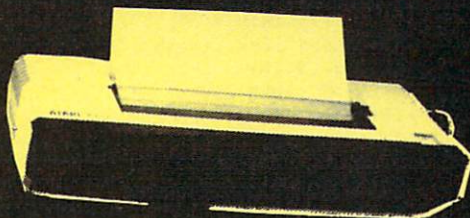
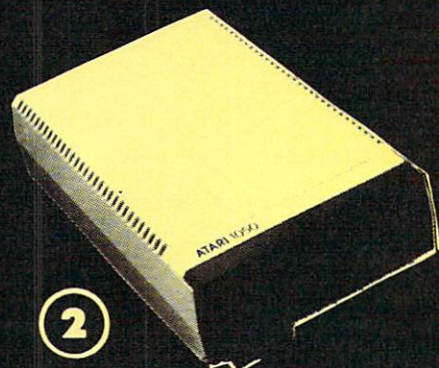
152K *Lowest Price In The USA!* 152K

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(130XE System)

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- Atari Writer Plus Word Processor with Spell Checker
- Atari BASIC Tutorial Manual

All connecting cables & T.V. interface included.
☆ Monitors sold separately.

LIST PRICE	INDIVIDUAL SALE PRICE
\$249.00	\$134⁹⁵
299.00	159⁹⁵
299.00	159⁹⁵
59.95	49⁹⁵
16.95	12⁹⁵
TOTALS	\$923.90 \$517.75

SAVE OVER \$100
ALL 5 ONLY
\$379⁰⁰
SYSTEM SALE PRICE

CALL FOR 1027 PRINTER REPLACEMENT OPTIONS

Other Accessories

	List	Sale	
☆ 12" Hi Resolution Green Screen Monitor	\$199.00	\$79.95	Add \$9.95 for Connection Cables
☆ 13" Hi Resolution Color Monitor	\$399.00	\$159.95	Add \$10 for UPS

15 DAY FREE TRIAL. We give you 15 days to try out this ATARI COMPUTER SYSTEM!! If it doesn't meet your expectations, just send it back to us prepaid and we will refund your purchase price!! **90 DAY IMMEDIATE REPLACEMENT WARRANTY.** If any of the ATARI COMPUTER SYSTEM equipment or programs fail due to faulty workmanship or material within 90 days of purchase we will replace it IMMEDIATELY with no service charge!!

Best Prices • Over 1000 Programs and 500 Accessories Available • Best Service
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HOME HELPER PROGRAM

IBM PC or compatible w/printer/All-Purpose Labelmaker

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Color/Graphics Monitor Adapter or Monochrome Printer Card, w/Disk BASIC D2.00 or Advanced BASIC A2.00. IBM PCjr w/Cartridge BASIC J1.00. Tandy 1000 w/GW-BASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67.) It should also work on many other PC compatibles.

```
10 DIM L$(5)
20 CLS
30 PRINT TAB(8);"ALL-PURPOSE LABELMAKER"
40 PRINT
50 PRINT "You can print up to five lines"
60 PRINT "on each label."
70 PRINT
80 PRINT "For each line, type up to 30"
90 PRINT "characters and press <ENTER>,"
100 PRINT "or press <ENTER> alone if done."
110 PRINT
120 LN=1
130 PRINT TAB(9);STRING$(30,"-")
140 PRINT "Line #";CHR$(LN+48);";";
150 LINE INPUT L$(LN)
160 IF L$(LN)="" THEN 250
170 IF LEN(L$(LN))<=30 THEN 230
180 PRINT
190 PRINT "That line was too long."
200 PRINT "Please try again."
210 PRINT
220 GOTO 130
230 LN=LN+1
240 IF LN<6 THEN 130
250 CLS
260 PRINT "Do you want this label"
270 PRINT
280 PRINT "<c>entered, or"
290 PRINT "<l>eft-justified?"
300 CNS=INKEY$
310 IF CNS<>"C" AND CNS<>"c" AND CNS<>"L" AND CNS<>"l"
    THEN 300
320 PRINT
330 PRINT "When your printer is ready,"
340 PRINT "please press any key."
350 K$=INKEY$
360 IF K$="" THEN 350
370 FOR I=1 TO 6
380 IF I>=LN THEN LPRINT:GOTO 410
390 IF CNS="C" OR CNS="c" THEN LPRINT SPC(15-LEN(L$(I)
    )/2);
400 LPRINT L$(I)
410 NEXT I
420 CLS
430 PRINT "Would you like to"
440 PRINT
450 PRINT "<p>rint this label again,"
460 PRINT "<c>ompose another label, or"
470 PRINT "<q>uit?"
480 K$=INKEY$
490 IF K$="P" OR K$="p" THEN 250
500 IF K$="C" OR K$="c" THEN 20
510 IF K$="Q" AND K$<>"q" THEN 480
```

Macintosh w/Microsoft BASIC 2.0 or 2.1 w/printer/All-Purpose Labelmaker

```
DIM L$(5)
CALL TEXTFONT(4):CALL TEXTSIZE(9)
CALL TEXTFACE(64):WIDTH(71)
WINDOW 1,"ALL-PURPOSE LABELMAKER", (0,38)-(512,338)
INSTRUCTIONS:
CLS
PRINT "You can print up to five lines on each label."
PRINT
PRINT "For each line, type up to 30 characters and"
PRINT "press <RETURN> or just press <RETURN> when"
PRINT "done."
PRINT
LN=1
```

```
GET.LABEL.LINE:
PRINT PTAB(83);STRING$(30,"-")
PRINT "Line #";LN;";";TAB(12);
LINE INPUT L$(LN)
IF L$(LN)="" THEN GET.LABEL.SPEC
IF LEN(L$(LN))<=30 THEN GO.ON
PRINT
PRINT "That line was too long. Please try again."
PRINT
GOTO GET.LABEL.LINE
GO.ON:
LN=LN+1
IF LN<6 THEN GET.LABEL.LINE
GET.LABEL.SPEC:
CLS
PRINT "Do you want this label"
PRINT
PRINT "<c>entered or"
PRINT "<l>eft-justified?"
GET.SPEC.KEY:
CNS=INKEY$
IF CNS<>"C" AND CNS<>"c" AND CNS<>"L" AND CNS<>"l"
THEN GET.SPEC.KEY
BEGIN.PRINT.FUNCTION:
PRINT
PRINT "When your printer is ready,"
PRINT "Please press any key."
GET.START.KEY:
K$=INKEY$
IF K$="" THEN GET.START.KEY
FOR I=1 TO 6
IF I>=LN THEN LPRINT:GOTO END.PRINT.LOOP
IF CNS="C" OR CNS="c" THEN LPRINT STRING$(15-LEN(L
    $(I))/2,32);
LPRINT L$(I)
END.PRINT.LOOP:
NEXT I
CLS
PRINT "Would you like to"
PRINT
PRINT "<p>rint this label again,"
PRINT "<c>ompose another label, or"
PRINT "<q>uit?"
GET.PREFERENCE.KEY:
K$=INKEY$
IF K$="P" OR K$="p" THEN GET.LABEL.SPEC
IF K$="C" OR K$="c" THEN INSTRUCTIONS
IF K$="Q" AND K$<>"q" THEN GET.PREFERENCE.KEY
```

Tandy Color Computer w/printer/All-Purpose Labelmaker

```
10 CLEAR 500
20 DIM L$(5)
30 SP$=CHR$(32)
40 DS$=CHR$(45)
50 FOR I=2 TO 30
60 SP$=SP$+CHR$(32)
70 DS$=DS$+CHR$(45)
80 NEXT I
90 CLS
100 PRINT TAB(5);"ALL-PURPOSE LABELMAKER"
110 PRINT
120 PRINT "YOU CAN PRINT UP TO FIVE"
130 PRINT "LINES ON EACH LABEL."
140 PRINT
150 PRINT "FOR EACH LINE, TYPE UP TO 30"
160 PRINT "CHARACTERS AND PRESS <ENTER>,"
170 PRINT "OR JUST PRESS <ENTER> WHEN DONE."
180 PRINT
190 LN=1
200 PRINT "LINE #";LN
210 PRINT TAB(2);DS$;
220 INPUT L$(LN)
230 IF L$(LN)="" THEN 320
240 IF LEN(L$(LN))<=30 THEN 300
250 PRINT
260 PRINT "THAT LINE WAS TOO LONG."
270 PRINT "PLEASE TRY AGAIN."
```


Mad as HELL at your Apple IIe/c Word Processor-Speller?



You don't have to take it anymore!

Writing Software International solves your frustrations with other Apple IIe/c Word Processor and Spell Checking systems.

Our Bard's "Pro-Am" Apple IIe/c Writing System consists of 3 Word Processing levels, a built-in 50,000 Word Spell Checker and includes animated graphic tutorials.

All for the tranquilizing price of only \$69.95

(This is less than most spell checkers alone!)

"I struggled with 'Applewriter' for quite a while and was continually frustrated by my inability to make it work. I was able to go immediately to your 'Professional' program and use it without frustration. I am completely satisfied." **Sheila Stern**, Baldwin, N.Y.

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What makes the Bard different?

Printer Setup Menu

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Apple IIe Laser
Apple IIe Laser II
Apple IIe Laser III
Apple IIe Laser IV
Apple IIe Laser V
Brother HR-15
Covex CR-2
Daisywriter
Datapoint DS-188

1st letter or arrows select.
ESC accepts choice.
BS to backtrack.

Over 30 popular pre-programmed setups. Select printer, then typeset font features with menu choices.

Preview full pages for layout problems before printing!

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Delete files from a disk
Make a new Work Disk

50,000 Word Spell Checking without multiple disk swaps. Add your own words, too!

Preview Page Feature

Word . . . 122
Line . . . 122
Paragraph . . . 122
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Page 1

BS to Backtrack

Also, 40/80* column versions, Macros, Cut/Paste, Find/Replace. Illustrated manual.
*Extended 80 column card required. Professional level requires 2 drives.

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Account # _____ Exp. Date ____/____/____

Amount enclosed \$ _____ Telephone _____

Signature _____

THIRTY DAY MONEY BACK GUARANTEE!

HOME HELPER PROGRAM

```

280 PRINT
290 GOTO 200
300 LN=LN+1
310 IF LN<6 THEN 200
320 CLS
330 PRINT "DO YOU WANT THIS LABEL"
340 PRINT
350 PRINT "<C>ENTERED, OR"
360 PRINT "<L>LEFT-JUSTIFIED?"
370 CNS=INKEY$
380 IF CNS<>"C" AND CNS<>"c" AND CNS<>"L" AND CNS<>"l"
    THEN 370
390 PRINT
400 PRINT "WHEN YOUR PRINTER IS READY,"
410 PRINT "PLEASE PRESS ANY KEY."
420 K$=INKEY$
430 IF K$="" THEN 420
440 FOR I=1 TO 6
450 IF I>=LN THEN PRINT#-2:GOTO 480
460 IF CNS="C" OR CNS="c" THEN PRINT#-2,LEFT$(SP$, (15-
    LEN(L$(I))/2));
470 PRINT#-2,L$(I)
480 NEXT I
490 CLS
500 PRINT "WOULD YOU LIKE TO"
510 PRINT
520 PRINT "<P>PRINT THIS LABEL AGAIN,"
530 PRINT "<C>COMPOSE ANOTHER LABEL, OR"
540 PRINT "<Q>QUIT?"
550 K$=INKEY$
560 IF K$="P" OR K$="p" THEN 320
570 IF K$="C" OR K$="c" THEN 90
580 IF K$<>"Q" AND K$<>"q" THEN 550
    
```

Tandy Models III & 4 (Model III mode) w/prINTER/ All-Purpose Labelmaker

```

10 CLEAR 500
20 DIM L$(5)
30 CLS
40 PRINT TAB(19);"ALL-PURPOSE LABELMAKER"
50 PRINT
60 PRINT "You can print up to five lines on each label"
70 PRINT
80 PRINT "For each line, type up to 30 characters and"
90 PRINT "press <ENTER>; or just press <ENTER> when done."
100 PRINT
110 LN=1
120 PRINT TAB(12);STRING$(30,"-")
130 PRINT "Line #";LN;": ";TAB(12);
140 LINE INPUT L$(LN)
150 IF L$(LN)="" THEN 230
160 IF LEN(L$(LN))<=30 THEN 210
170 PRINT
180 PRINT "That line was too long. Please try again."
190 PRINT
200 GOTO 120
210 LN=LN+1
220 IF LN<6 THEN 120
230 CLS
240 PRINT "Do you want this label"
250 PRINT
260 PRINT "<C>entered or"
270 PRINT "<L>left-justified?"
280 CNS=INKEY$
290 IF CNS<>"C" AND CNS<>"c" AND CNS<>"L" AND CNS<>"l"
    THEN 280
300 PRINT
310 PRINT "When your printer is ready,"
320 PRINT "please press any key."
330 K$=INKEY$
340 IF K$="" THEN 330
350 FOR I=1 TO 6
360 IF I>=LN THEN LPRINT:GOTO 390
370 IF CNS="C" OR CNS="c" THEN LPRINT STRING$(15-LEN(L
    $(I))/2,32);
    
```

```

380 LPRINT L$(I)
390 NEXT I
400 CLS
410 PRINT "Would you like to"
420 PRINT
430 PRINT "<P>print this label again,"
440 PRINT "<C>compose another label, or"
450 PRINT "<Q>quit?";
460 K$=INKEY$
470 IF K$="P" OR K$="p" THEN 230
480 IF K$="C" OR K$="c" THEN 30
490 IF K$<>"Q" AND K$<>"q" THEN 460
    
```

TI-99/4A w/prINTER/All-Purpose Labelmaker

```

10 DIM L$(5)
20 SP$=CHR$(32)
30 DS$=CHR$(45)
40 FOR I=2 TO 30
50 SP$=SP$&CHR$(32)
60 DS$=DS$&CHR$(45)
70 NEXT I
80 CALL CLEAR
90 PRINT TAB(5);"ALL-PURPOSE LABELMAKER"
100 PRINT
110 PRINT "YOU CAN PRINT UP TO FIVE"
120 PRINT "LINES ON EACH LABEL."
130 PRINT
140 PRINT "FOR EACH LINE, TYPE UP TO"
150 PRINT "30 CHARACTERS AND PRESS"
160 PRINT "<ENTER>; OR JUST PRESS"
170 PRINT "<ENTER> WHEN DONE."
180 PRINT
190 LN=1
200 PRINT "LINE #";CHR$(LN+48);
210 INPUT L$(LN)
220 IF L$(LN)="" THEN 310
230 IF LEN(L$(LN))<=30 THEN 290
240 PRINT
250 PRINT "THAT LINE WAS TOO LONG."
260 PRINT "PLEASE TRY AGAIN."
270 PRINT
280 GOTO 200
290 LN=LN+1
300 IF LN<6 THEN 200
310 CALL CLEAR
320 PRINT "DO YOU WANT THIS LABEL"
330 PRINT
340 PRINT "<C>ENTERED, OR"
350 PRINT "<L>LEFT-JUSTIFIED"
360 CALL KEY(3,CN,S)
370 IF (CN<>67)+(CN<>99)+(CN<>76)+(CN<>108)=-4 THEN 36
    0
380 PRINT
390 PRINT "WHEN YOUR PRINTER IS READY,"
400 PRINT "PLEASE PRESS ANY KEY."
410 CALL KEY(3,K,S)
420 IF S<1 THEN 410
430 OPEN #1:"PIO"
440 FOR I=1 TO 6
450 IF I<LN THEN 480
460 PRINT #1
470 GOTO 510
480 IF (CN=76)+(CN=108) THEN 500
490 PRINT #1:SEG$(SP$,1,(15-LEN(L$(I))/2));
500 PRINT #1:L$(I)
510 NEXT I
520 CLOSE #1
530 CALL CLEAR
540 PRINT "WOULD YOU LIKE TO"
550 PRINT
560 PRINT "<P>PRINT THIS LABEL AGAIN,"
570 PRINT "<C>COMPOSE ANOTHER LABEL, OR"
580 PRINT "<Q>QUIT?"
590 CALL KEY(3,K,S)
600 IF (K=80)+(K=112) THEN 310
610 IF (K=67)+(K=99) THEN 80
620 IF (K=81)+(K=113)=0 THEN 590
    
```


PROGRAMMING P.S.

NOTE TO TANDY 1000 OWNERS USING GW-BASIC 2.02 VERSION 00.05.00:

According to Tandy, GW-BASIC version 00.05 has been supplanted by several more recent releases. As of this issue, we will be testing our IBM PC & compatibles programs on the Tandy 1000 using GW-BASIC 2.02 version 01.01.00 and subsequent versions only. Registered users of GW-BASIC 2.02 version 00.05.00 can return their original disk to their Radio Shack computer dealer for a free upgrade.

Tandy Model III & 4 (Model III mode)/Letter Getter (May 1986, page 54).

Due to a printer's error, an incorrect version of this program appeared under the Model III & 4 program head last month. The correct version is presented below.

```
10 DT=100
20 S=0
30 CLS
40 CH=RND(26)+64
50 PRINT@960+RND(63),CHR$(CH);
60 I=15
70 K$=INKEY$
80 IF K$<>CHR$(CH) THEN 150
90 CLS
100 S=S+I
110 PRINT TAB(27);S
120 FOR DE=1 TO 250
130 NEXT DE
140 GOTO 30
150 FOR DE=1 TO DT
160 NEXT DE
170 PRINT
180 IF I>0 THEN I=I-1:GOTO 70
190 CLS
200 PRINT "YOUR SCORE WAS";S
210 PRINT
220 PRINT "PRESS ANY KEY TO PLAY AGAIN."
230 K$=INKEY$
240 IF K$="" THEN 230
250 GOTO 20
```

TIPS TO THE TYPIST

SOME GENERAL RULES

- 1. Do** read instructions and program headings carefully.
- 2. Don't** let fatigue and boredom contribute to inaccuracy. If you're new to programming, type in a longer program in easy stages, SAVING each installment as you go.
- 3. Do** assume that every character in a program listing must be copied accurately if a program is to work correctly.
- 4. Do** watch out for potential trouble spots. About 90 percent of all typing errors occur in DATA statements.
- 5. Do** be aware that our program listings are printed 54 characters wide. Thus, a single BASIC program "line" (sometimes called a "logical line") may appear as several lines in our listing. If you are typing along and reach the right margin of the printed listing, don't press RETURN or ENTER before checking to see if the program "line" you're typing really ends there.
- 6.** To correct an error in a BASIC program line, type the line in again from the beginning, and press RETURN or ENTER to replace the old line.

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CIRCLE READER SERVICE 47

JUNE 1986 67

TRANSFOTBOT

BY JOEY LATIMER

Imagine a mighty robot hero, made of the strongest metal known, able to transform itself into a sleek and powerful starship at your command. It's *Transfotbot*! By pressing the number keys 1 through 5, you can change different sections of *Transfotbot*'s body into the sleek hull, swept-back wings, and awesome thrusters of a starship. The 6 key makes *Transfotbot* change all at once, and the 7 key blasts off!



Commodore 64 & 128 (C 64 mode)/Transfotbot

```
10 DIM RS(24,1),A(5),B(5),Z(5)
20 SQS=CHR$(18)+CHR$(32)
30 POKE 53281,0:POKE 53280,0
40 PRINT CHR$(147):PRINT:PRINT TAB(15);"STAND BY ..."
50 FOR H=0 TO 1:FOR I=1 TO 24
60 READ S:RS(I,H)="":
70 FOR J=1 TO S:READ KO,T
80 RS(I,H)=RS(I,H)+CHR$(KO+148)
90 FOR K=1 TO T:RS(I,H)=RS(I,H)+SQS
100 NEXT K,J,I,H
110 FOR I=1 TO 5:READ A(I),B(I):Z(I)=0:NEXT I
120 PRINT CHR$(147):FOR K=1 TO 5:GOSUB 1000:NEXT K
130 GET K$:K=VAL(K$):IF K<1 OR K>7 THEN 130
140 IF K<6 THEN GOSUB 1000:GOTO 130
150 IF K=7 THEN POKE 214,23:PRINT:FOR I=1 TO 24:PRINT:
NEXT I
160 FOR K=1 TO 5:IF K>1 THEN Z(K)=1-Z(1)
170 GOSUB 1000:NEXT K:GOTO 130
1000 IF K=1 THEN PRINT CHR$(19):GOTO 1020
1010 POKE 214,A(K)-2:PRINT
1020 FOR I=A(K) TO B(K):PRINT TAB(11);RS(I,Z(K))
1030 NEXT I:Z(K)=1-Z(K):RETURN
2000 DATA 3,-4,6,7,5,-4,6,3,-4,5,7,7,-4,5,9
2010 DATA -4,4,10,1,7,2,2,1,7,1,2,1,7,2,10
2020 DATA 1,-4,4,3,-4,5,7,7,-4,5,3,-4,6,7,5
2030 DATA -4,6,5,-4,2,6,5,7,3,6,5,-4,2,5,-4
2040 DATA 1,6,6,7,3,6,6,-4,1,1,6,17,3,6,10
2050 DATA 8,1,6,6,1,6,17,5,6,3,-4,1,6,9,-4
2060 DATA 1,6,3,5,6,3,-4,1,6,9,-4,1,6,3,5
2070 DATA 6,3,-4,1,8,9,-4,1,6,3,5,2,3,-4,1
2080 DATA 6,9,-4,1,2,3,5,2,2,-4,2,6,9,-4,2
2090 DATA 2,2,5,2,1,-4,3,6,9,-4,3,2,1,5,2
2100 DATA 1,-4,3,6,9,-4,3,2,1,5,-4,4,6,4,-4
2110 DATA 1,6,4,-4,4,5,-4,4,6,4,-4,1,6,4,-4
2120 DATA 4,5,-4,4,6,4,-4,1,6,4,-4,4,5,-4,4
2130 DATA 6,4,-4,1,6,4,-4,4,5,-4,4,6,4,-4,1
2140 DATA 6,4,-4,4,5,-4,2,4,6,-4,1,4,6,-4,2
2150 DATA 5,-4,1,4,7,-4,1,4,7,-4,1,3,-4,8,7
2160 DATA 1,-4,8,3,-4,7,7,3,-4,6,7,-4,6,7,1
2170 DATA 10,1,7,1,10,1,7,1,-4,6,3,-4,6,7,5
2180 DATA -4,6,3,-4,4,7,9,-4,4,3,-4,3,7,11,-4
2190 DATA 3,3,-4,2,7,13,-4,2,7,-4,1,7,6,6,1
2200 DATA 7,1,6,1,7,6,-4,1,5,7,6,1,7,1
2210 DATA 6,1,7,7,5,7,7,6,1,7,1,6,1,7,7
```

```
2220 DATA 5,7,6,6,2,7,1,6,2,7,6,5,7,5,6
2230 DATA 3,7,1,6,3,7,5,1,7,17,1,7,17,5,7
2240 DATA 3,-4,2,7,7,-4,2,7,3,5,7,2,-4,3,7
2250 DATA 7,-4,3,7,2,5,7,1,-4,4,7,7,-4,4,7
2260 DATA 1,3,-4,4,7,9,-4,4,3,-4,4,7,9,-4,4
2270 DATA 3,-4,4,7,9,-4,4,3,-4,4,7,9,-4,4,3
2280 DATA -4,3,7,11,-4,3,5,-4,2,7,6,-4,1,7,6
2290 DATA -4,2,9,-4,2,7,2,-4,1,7,2,-4,3,7,2
2300 DATA -4,1,7,2,-4,2,1,5,6,10,11,14,15,17,18,24
```

IBM PC & compatibles/Transfotbot

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Color/Graphics Monitor Adapter, w/Disk BASIC D2.00 or Advanced BASIC A2.00. IBM PCjr w/Cartridge BASIC J1.00. Tandy 1000 w/GWBASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67.)

```
10 DIM RS(24,1),A(5),B(5),Z(5)
20 CLS:WIDTH 40:KEY OFF:SCREEN 0,1
30 LOCATE 12,16,0:COLOR 7:PRINT "Stand by ..."
40 FOR H=0 TO 1:FOR I=1 TO 24
50 RS(I,H)="":C=0
60 READ T,KO:RS(I,H)=RS(I,H)+CHR$(T)+CHR$(KO)
70 C=C+T:IF C<17 THEN 60
80 NEXT I,H
90 FOR I=1 TO 5:READ A(I),B(I):Z(I)=0:NEXT I
100 CLS:FOR K=1 TO 5:GOSUB 1000:NEXT K
110 K$=INKEY$:K=VAL(K$):IF K<1 OR K>7 THEN 110
120 IF K<6 THEN GOSUB 1000:GOTO 110
130 IF K=7 THEN LOCATE 24,1,0:FOR I=1 TO 24:PRINT:
NEXT I
140 FOR K=1 TO 5:IF K>1 THEN Z(K)=1-Z(1)
150 GOSUB 1000:NEXT K:GOTO 110
1000 FOR I=A(K) TO B(K):LOCATE I,12,0:C=0:P=1
1010 T=ASC(MID$(RS(I,Z(K))),P,1))
1020 CL=ASC(MID$(RS(I,Z(K))),P+1,1))
1030 COLOR CL:PRINT STRING$(T,219);
1040 C=C+T:IF C<17 THEN P=P+2:GOTO 1010
1050 NEXT I:Z(K)=1-Z(K):COLOR 7:RETURN
2000 DATA 6,0,5,7,6,0,5,0,7,7,5,0,4,0,1,6,2,7,1,4
2010 DATA 1,7,1,4,2,7,1,6,4,0,5,0,7,7,5,0,6,0,5,7
2020 DATA 6,0,2,0,5,1,3,7,5,1,2,0,1,0,6,1,3,7,6,1
2030 DATA 1,0,17,1,10,1,1,5,6,1,17,1,3,1,1,0,9,1
2040 DATA 1,0,3,1,3,1,1,0,9,1,1,0,3,1,3,1,1,0,9,5
2050 DATA 1,0,3,1,3,4,1,0,9,1,1,0,3,4,2,4,2,0,9,1
2060 DATA 2,0,2,4,1,4,3,0,9,1,3,0,1,4,1,4,3,0,9,1
2070 DATA 3,0,1,4,4,0,4,1,1,0,4,1,4,0,4,0,4,1,1,0
2080 DATA 4,1,4,0,4,0,4,1,1,0,4,1,4,0,4,0,4,1,1,0
2090 DATA 4,1,4,0,4,0,4,1,1,0,4,1,4,0,2,0,6,7,1,0
2100 DATA 6,7,2,0,1,0,7,7,1,0,7,7,1,0,7,7,1,0
2110 DATA 8,0,1,7,8,0,7,0,3,7,7,0,6,0,1,7,1,6,1,7
2120 DATA 1,6,1,7,6,0,6,0,5,7,6,0,4,0,9,7,4,0,3,0
2130 DATA 11,7,3,0,2,0,13,7,2,0,1,0,6,7,1,1,1,7,1
2140 DATA 1,6,7,1,0,7,7,1,1,7,1,1,7,1,7,7,1,1,1
2150 DATA 7,1,1,7,7,6,7,2,1,7,2,1,6,7,5,7,3,1,1
2160 DATA 7,3,1,5,7,17,7,17,7,3,7,2,0,7,7,2,0,3,7
2170 DATA 2,7,3,0,7,7,3,0,2,7,1,7,4,0,7,7,4,0,1,7
2180 DATA 4,0,9,7,4,0,4,0,9,7,4,0,4,0,9,7,4,0,4,0
2190 DATA 9,7,4,0,3,0,11,7,3,0,2,0,6,7,1,0,6,7,2,0
2200 DATA 2,0,2,7,1,0,2,7,3,0,2,7,1,0,2,7,2,0
2210 DATA 1,5,6,10,11,13,14,17,18,24
```

Tandy Color Computer/Transfotbot

```
10 CLEAR 1000
20 DIM RS(15,1),A(5),B(5),Z(5)
30 CLS:PRINT@234,"STAND BY ..."
40 FOR H=0 TO 1:FOR I=1 TO 15
50 READ S:RS(I,H)="":FOR J=1 TO S
60 READ KO,T:FOR K=1 TO T
70 RS(I,H)=RS(I,H)+CHR$(KO):NEXT K,J,I,H
80 BL$=CHR$(128)
90 FOR I=2 TO 13:BL$=BL$+CHR$(128):NEXT I
100 FOR I=1 TO 5:READ A(I),B(I):Z(I)=0:NEXT I
110 CLS(0):FOR K=1 TO 5:GOSUB 1000:NEXT K
120 K$=INKEY$:K=VAL(K$):IF K<1 OR K>7 THEN 120
130 IF K<6 THEN GOSUB 1000:GOTO 120
140 IF K=6 THEN 180
150 FOR I=1 TO 15:FOR J=I TO 15
160 PRINT@ (J-I)*32+10,RS(J,1-Z(I));
```



```

170 NEXT J:PRINT(J-I)*32+10,BL$:NEXT I:CLS(0)
180 FOR K=1 TO 5:IF K>1 THEN Z(K)=1-Z(1)
190 GOSUB 1000:NEXT K:GOTO 120
1000 FOR I=A(K) TO B(K):PRINT(I*32+10,R$(I,Z(K)));
1010 NEXT I:Z(K)=1-Z(K):RETURN
2000 DATA 5,128,4,193,1,207,3,194,1,128,4,9,128,3,145
2010 DATA 1,207,1,254,1,207,1,253,1,207,1,146,1,128,3
2020 DATA 5,128,3,148,1,207,5,152,1,128,3,7,128,1,163
2030 DATA 3,199,1,207,3,203,1,163,3,128,1,1,175,13,1
2040 DATA 175,13,5,175,2,128,1,175,7,128,1,175,2,5,175
2050 DATA 2,128,1,239,7,128,1,175,2,5,191,2,128,1,175
2060 DATA 7,128,1,191,2,5,191,1,128,2,175,7,128,2,191
2070 DATA 1,5,128,3,175,3,128,1,175,3,128,3,5,128,3
2080 DATA 175,3,128,1,175,3,128,3,5,128,3,175,3,128,1
2090 DATA 175,3,128,3,5,128,3,175,3,128,1,175,3,128,3
2100 DATA 7,128,1,199,1,207,4,128,1,207,4,203,1,128,1
2110 DATA 3,128,6,207,1,128,6,5,128,5,206,1,207,1,205
2120 DATA 1,128,5,3,128,4,207,5,128,4,3,128,3,207,7
2130 DATA 128,3,7,128,2,207,3,175,1,207,1,175,1,207,3
2140 DATA 128,2,7,128,1,207,4,175,1,207,1,175,1,207,4
2150 DATA 128,1,7,128,1,207,3,175,2,207,1,175,2,207,3
2160 DATA 128,1,1,207,13,5,207,2,128,1,207,7,128,1,207
2170 DATA 2,5,207,1,128,2,207,7,128,2,207,1,3,128,3
2180 DATA 207,7,128,3,3,128,2,207,9,128,2,3,128,2,207
2190 DATA 9,128,2,5,128,1,207,5,128,1,207,5,128,1,9
2200 DATA 128,1,207,2,128,1,207,1,128,3,207,1,128,1,207
2210 DATA 2,128,1,1,3,4,6,7,8,9,10,11,15

```

Tandy Models III & 4 (Model III mode)/Transfobot

```

10 CLEAR 1000
20 DIM R$(15,1),P$(15),A(5),B(5),Z(5)
30 CLS:PRINT@473,"STAND BY ... "
40 FOR H=0 TO 1:FOR I=1 TO 15
50 READ S:R$(I,H)=S
60 FOR J=1 TO S:READ KO,T
70 FOR K=1 TO T:R$(I,H)=R$(I,H)+CHR$(KO)
80 NEXT K,J,I,H
90 FOR I=1 TO 5:READ A(I),B(I):Z(I)=0:NEXT I

```

```

100 CLS:FOR K=1 TO 5:GOSUB 1000:NEXT K
110 K$=INKEY$:IF K$<"1" OR K$>"7" THEN 110
120 K=VAL(K$):IF K<6 THEN GOSUB 1000:GOTO 110
130 IF K=7 THEN PRINT@960,"":FOR I=1 TO 24:PRINT:NEXT I
140 FOR K=1 TO 5:IF K>1 THEN Z(K)=1-Z(1)
150 GOSUB 1000:NEXT K:GOTO 110
1000 FOR I=A(K) TO B(K):PRINT@64*I+22,R$(I,Z(K));
1010 NEXT I:Z(K)=1-Z(K):RETURN
2000 DATA 5,128,4,190,1,191,3,189,1,128,4,9
2010 DATA 128,3,160,1,191,1,159,1,191,1,175,1
2020 DATA 191,1,144,1,128,3,5,128,3,130,1,191
2030 DATA 5,129,1,128,3,7,128,1,188,3,190,1
2040 DATA 191,3,189,1,188,3,128,1,1,191,13,1
2050 DATA 191,13,5,191,2,128,1,191,7,128,1,191
2060 DATA 2,5,191,2,128,1,166,7,128,1,191,2
2070 DATA 5,191,2,128,1,191,7,128,1,191,2,5
2080 DATA 191,1,128,2,191,7,128,2,191,1,5,128
2090 DATA 3,191,3,128,1,191,3,128,3,5,128,3
2100 DATA 191,3,128,1,191,3,128,3,5,128,3,191
2110 DATA 3,128,1,191,3,128,3,5,128,3,191,3
2120 DATA 128,1,191,3,128,3,7,128,1,188,1,191
2130 DATA 4,128,1,191,4,188,1,128,1,3,128,6
2140 DATA 191,1,128,6,5,128,5,159,1,191,1,175
2150 DATA 1,128,5,3,128,4,191,5,128,4,3,128
2160 DATA 3,191,7,128,3,7,128,2,191,3,128,1
2170 DATA 191,1,128,1,191,3,128,2,7,128,1,191
2180 DATA 4,128,1,191,1,128,1,191,4,128,1,7
2190 DATA 128,1,191,3,128,2,191,1,128,2,191,3
2200 DATA 128,1,1,191,13,5,191,2,128,1,166,7
2210 DATA 128,1,191,2,5,191,1,128,2,166,7,128
2220 DATA 2,191,1,3,128,3,191,7,128,3,3,128
2230 DATA 2,191,9,128,2,3,128,2,191,9,128,2
2240 DATA 5,128,1,191,5,128,1,191,5,128,1,9
2250 DATA 128,1,191,2,128,1,191,1,128,3,191,1
2260 DATA 128,1,191,2,128,1,1,3,4,6,7,8
2270 DATA 9,10,11,15

```

HINT FOR MORT'S LOAD (p. 70)

"... that is the question."—Shakespeare

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MORT'S LOAD

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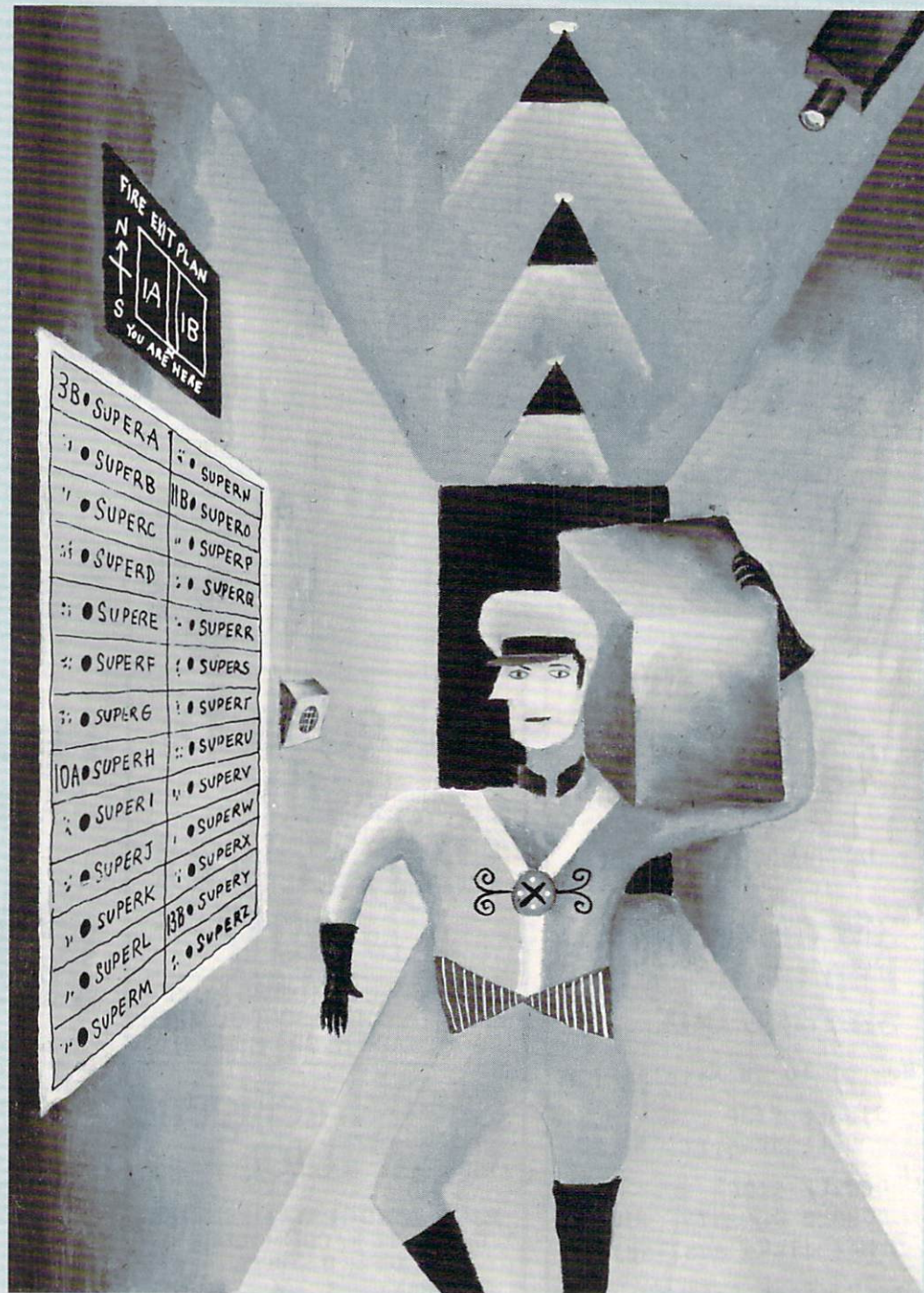
**PUZZLE BY
SARAH KORTUM AND
PETER FAVARO
PROGRAM BY
STEVEN C.M. CHEN**

Even if you're not a puzzle fan, you can have fun practicing the Morse code with this month's puzzle program. See "Bonus Program," page 76, for a description of a small change you can make in Mort's Load to turn your computer into a Morse code machine.

Mort kicked the secondary particle accelerator and listened as the engine of his Hovercraft sputtered and lurched into the power-up condition. "This darned rust-bucket's got to go; it's almost as old as I am!" Mort thought as he wiped a speck of grease from his faded uniform, which proudly displayed "Atomic Express Delivery Service" in neat embroidery on his back.

After checking with traffic control, Mort called up his itinerary onto the green-phosphor display that glowed from his cluttered dashboard. The date was June 1, 2086. The delivery schedule showed that Mort was due to deliver a large package of electronics to the superintendent at the Rotex building on Interface Lane. After punching the coordinates of the building into the trip computer, Mort sped onto the entrance tube to the freeway.

Mort knew the building well. Not only was it the only 20th-century apartment house in town that was still standing, but it had been the home of his great-grandmother. Mort remembered how he used



to run across its slippery marble floors in his stocking feet, sliding past the shiny brass plaques that adorned every apartment door. The plaque on his grandmother's door read

"7B." It was directly above an apartment with the plaque "6B." As a child, Mort was fascinated that all the "A" and "B" letters were in the same place on each floor, while the num-

bers changed. And to this day, Mort could remember that there were a total of 26 apartments in the 13-story building.

The building was purchased by the engineering

firm of Rotex, Inc. about 40 years ago. The high-tech company agreed to preserve the historic building in its original form, even to maintain its old-fashioned tenant directory and buzzer buttons in the entrance corridor. Opposite the directory was an ancient, one-way video camera for screening visitors. Even the original fire-exit map was still hanging in the corridor, complete with a large red "X" indicating one's position.

Rumor had it that Rotex, Inc. ran a top-secret research project in the building. The only person who ever seemed to leave the premises was the building super, a cagey old gent whom Mort occasionally whizzed past in the aisles of the local mall. Mort often tried to strike up a conversation about just *what* went on in the building, but the super would simply reply, "Oh, a little of this and a little of that," and quickly change the topic.

THE 26 BUZZERS

The Hovercraft sputtered to a stop outside the Rotex building. Mort walked down the entrance corridor leading to the locked front door. He scanned the tenant directory for the superintendent's apartment but found to his surprise that *every* name on the directory read "SUPER," followed by a letter in alphabetical order. Most of the apartment numbers on the directory had faded with time. "Great," thought Mort. "Now all I have to do is buzz 26 different apartments to find out which one belongs to the building's super!"

Mort took his best guess and pushed a buzzer somewhere toward the middle of the directory. He heard the faint click of the video camera turning and focusing, and wondered uneasily who was watching him from the comfort of his or her

apartment. On days like this, retiring to the Alpha Quad resort in Florida seemed more attractive by the minute.

Suddenly, Mort heard the door buzzer sounding to let him in. "Could I have hit it on the first try?" he wondered. Mort's surprise quickly turned to disappointment when he discovered that the buzzing did not continue long enough for him to open the front door. His next attempts proved just as futile. Every time he rang an apartment, the electronic reply consisted of rapid bursts of alternating long and short buzzes. Mort began to face the fact that he might have to miss his first delivery in almost 30 years of service because of some ancient buzzer system that sounded more like Morse code than anything else.

"Hey, wait a minute!" Mort thought. "Could it be . . . ?" Excited, he set the package down, pulled out a notepad, and methodically tried every buzzer, jotting down the pattern of the response from each. Occasionally he found he had to go back and re-buzz a tenant who did not answer the first time.

When Mort was finished, he began to translate the responses according to Morse code. Sure enough, each response spelled something. Unfortunately, it was not what he wanted to hear. Each tenant was describing his or her position in relationship to another tenant. But one tenant never revealed a thing. Was that person the super? If so, just where did he fit in? Mort wiped his brow in frustration.

And then it occurred to him: since he knew the relative positions of everybody else, shouldn't he be able to deduce the position of that one missing tenant? He gave it a try, hoping that he would gain entry into the secret world of Rotex, Inc.

HOW TO PLAY

Type each line of the program into your computer exactly as shown, carefully making the appropriate modifications. (See "Tips to the Typist," page 67, for help with typing in programs.) Then save the program to disk or cassette.

When you RUN the program, you find yourself in the apartment vestibule at the Rotex building. You'll see the buzzers and labels for each apartment.

Take a look at the buzzer buttons in front of each tenant name (SUPERA, SUPERB, etc.) You'll see that one of them looks different; that's the one your finger is resting on. Use the "I" (up), "J" (left), "K" (down), and "L" (right) keys to move your finger to the button you want. Then press RETURN (or ENTER) to press that button.

You'll hear the buzzer sound, then the response of the tenant in the apartment you buzzed (if that tenant is at home). The

response will be in Morse code. If you're not "up" on your Morse, you might want to write down the pattern of dots (short buzzes) and dashes (longer buzzes—three times as long, in fact), and then use the table (below) to translate the message into English. As in standard International Morse Code, a pause as long as three "dots" separates the letters in a word, and a pause as long as six "dots" separates words.

If relying on your ear proves too difficult, press the "D" key instead of RETURN or ENTER to ring a buzzer, and the coded response will be displayed across the bottom of your screen as a series of asterisks (dots) and hyphens (dashes)—as each letter sounds.

You can press "Q" to quit the puzzle at any time except when a tenant is buzzing a message to you.

When you've tried all the buzzers and the PRESS <G> TO GUESS message ap-

THE INTERNATIONAL MORSE CODE

LETTER CODE

A	• -
B	- • • •
C	- • - •
D	- • •
E	•
F	• • - •
G	- - •
H	• • • •
I	• •
J	• - - -
K	- • -
L	• - • •
M	- -
N	- •
O	- - -
P	• - - •
Q	- - • -
R	• - •
S	• • •
T	-
U	• • -
V	• • • -
W	• - -
X	- • • -
Y	- • - -
Z	- - • •

NUMBER CODE

1	• - - - -
2	• • - - -
3	• • • - -
4	• • • • -
5	• • • • •
6	- • • • •
7	- - • • •
8	- - - • •
9	- - - - •
0	- - - - -

CHARACTER CODE

Period	• - • - • -
Comma	- - • • - -
Question mark	• • - - • •
Parentheses	- • - - • -
Apostrophe	• - - - - •
Semicolon	- • • - • •
Colon	- - - • • •
Quotation marks	• - • • - •
Hyphen	- • • • • -
Fraction bar	- • • • •
Error	• • • • • • • •
Dollar sign	• • • - • • -

If you have trouble, there's a hint on page 69. The solution to the puzzle appears on page 76. You'll find the conclusion to the story there, but you shouldn't read it until after you've solved the puzzle.

```

10 NORMAL
20 OP = 1:DM = 1
30 DIM AS(1),LS(1),MC$(58),WS(21)
40 DIM CT(25),MS(1),Z(25)
50 SP$ = CHR$(32):LS(0) = "BELOW"+SP$
60 LS(1) = "ABOVE"+SP$:AS(0) = SP$+"AND WEST OF"+SP$
70 AS(1) = "EAST OF"+SP$:BL$ = SP$
80 FOR X = 2 TO 8:BL$ = BL$+SP$:NEXT X
90 MS(0) = 6:MS(1) = 26:TR = 0
100 FOR X = 0 TO 58:READ MC$(X):NEXT X
110 FOR X = 0 TO 36:READ T:POKE X+768,T:NEXT X
120 IF OP = 1 THEN 160
130 HOME:PRINT "WHAT IS YOUR MESSAGE";
140 INPUT C$:IF C$ = "" THEN END
150 GOSUB 5000:GOTO 130
160 FOR X = 0 TO 25:CT(0) = 0:READ Z(X):NEXT X
170 FOR X = 0 TO 20:MS = "":READ TS
180 FOR Y = 1 TO LEN(T$):K$ = MID$(T$,Y,1)
190 MS = MS+CHR$(ASC(K$)-1):NEXT Y
200 WS(X) = MS:NEXT X:WS(6) = WS(6)+"!"
210 WS(17) = SP$:WS(21) = CHR$(50)+CHR$(66)
220 CX = 0:CY = 0:CP = 0:GF = 0
230 HOME:GOSUB 1000
240 GOSUB 2000:IF K <> 71 OR TR <> 25 THEN 240
250 HOME:MS = "":POKE -16368,0
260 PRINT "WHAT IS THE SUPER'S APARTMENT NUMBER";
270 INPUT T$:IF T$ = "" THEN 260
280 FOR X = 1 TO LEN(T$):K = ASC(MID$(T$,X,1))
290 GOSUB 4000:MS = MS+CHR$(K):NEXT X
300 HOME:IF MS = WS(21) THEN 350
310 T$ = BL$:FOR X = 1 TO 15
320 VTAB 12:MS = CHR$(7)+"WRONG!":GOSUB 3000
330 FOR D = 1 TO 50:NEXT D:VTAB 12
340 MS = T$:GOSUB 3000:NEXT X:GOTO 230
350 MS = "CORRECT!":VTAB 2:GOSUB 3000:PRINT
360 MS = "(MAYBE THE SUPER IS HOME NOW ...)"
370 GOSUB 3000:MS = "PRESS <SPACE BAR> TO CONTINUE."
380 GF = 1:VTAB 23:GOSUB 3000
390 GOSUB 4000:IF K <> 32 THEN 390
400 HOME:GOSUB 1000
410 GOSUB 2000:IF (CP <> 8) OR (K <> 13 AND K <> 68) THEN 410
420 HOME:FOR Y = 0 TO 5:MS = WS(Y)
430 VTAB 24:GOSUB 3000:FOR NY = 1 TO 24
440 PRINT:FOR D = 1 TO 50:NEXT D,NY,Y
450 FOR D = 1 TO 1000:NEXT D
460 HOME:LM = 17:FOR Y = 1 TO 15
470 MS = WS(Y+5):T = LEN(MS):RM = 38-T
480 FOR X = RM TO LM STEP -1:VTAB Y:HTAB X
490 PRINT MS;SP$;:FOR D = 1 TO 20:NEXT D,X
500 FOR D = 1 TO 100:NEXT D,Y:POKE -16368,0:END
1000 VTAB 2:FOR Y = 1 TO 13
1010 PRINT TAB(MS(0));"0 SUPER";CHR$(64+Y);
1020 PRINT TAB(MS(1));"0 SUPER";CHR$(77+Y)
1030 NEXT Y:IF TR <> 25 OR GF THEN RETURN
1040 VTAB 16:MS = "PRESS <G> TO GUESS."
1050 GOSUB 3000:RETURN
2000 VTAB CY+2:HTAB MS(CX)

```

```

10 POKE 650,128:POKE 649,1
20 OP=1:DM=1
30 DIM AS(1),LS(1),MC$(58),WS$(21)
40 DIM CT(25),MS(1),Z(25)
50 PRINT CHR$(142):CHR$(8):CHR$(5)
60 OS=CHR$(209):SP$=CHR$(32):LS(0)=""BELOW"+SP$
70 LS(1)=""ABOVE"+SP$:AS(0)=SP$+"AND WEST OF"+SP$
80 AS(1)=""EAST OF"+SP$:BL$=SP$
90 FOR X=2 TO 8:BL$=BL$+SP$:NEXT X
100 MS(0)=6:MS(1)=26:TR=0
110 FOR X=0 TO 58:READ MC$(X):NEXT X

```



```

120 S=54272:FOR X=0 TO 24:POKE S+X,0:NEXT X
130 POKE S+5,0:POKE S+6,240:POKE S+1,30
140 POKE S,55:POKE S+24,15:IF OP=1 THEN 180
150 PRINT CHR$(147);"WHAT IS YOUR MESSAGE";
160 CS="":INPUT CS:IF CS="" THEN 510
170 GOSUB 5000:GOTO 150
180 FOR X=0 TO 25:CT(0)=0:READ Z(X):NEXT X
190 FOR X=0 TO 20:MS="":READ TS
200 FOR Y=1 TO LEN(TS):KS=MID$(TS,Y,1)
210 MS=MS+CHR$(ASC(KS)-1):NEXT Y
220 WS(X)=MS:NEXT X:WS(6)=WS(6)+"!"
230 WS(17)=SPS:WS(21)=CHR$(50)+CHR$(66)
240 CX=0:CY=0:CP=0:GF=0
250 PRINT CHR$(147):GOSUB 1000
260 GOSUB 2000:IF K<>71 OR TR<>25 THEN 260
270 PRINT CHR$(147)
280 PRINT "WHAT IS THE SUPER'S APARTMENT NUMBER";
290 TS="":INPUT TS:IF TS="" THEN 280
300 PRINT CHR$(147):IF TS=WS(21) THEN 350
310 TS=BL$:FOR X=1 TO 15
320 POKE 214,12:PRINT:MS="WRONG!":GOSUB 3000
330 SD=65:GOSUB 6000:POKE 214,12:PRINT
340 MS=TS:GOSUB 3000:NEXT X:GOTO 250
350 MS="CORRECT!":POKE 214,1:PRINT:GOSUB 3000:PRINT
360 MS="(MAYBE THE SUPER IS HOME NOW ...)"
370 GOSUB 3000:MS="PRESS <SPACE BAR> TO CONTINUE."
380 GF=-1:POKE 214,22:PRINT:GOSUB 3000
390 GOSUB 4000:IF K<>32 THEN 390
400 PRINT CHR$(147):GOSUB 1000
410 GOSUB 2000:IF (CP<>8) OR (K<>13 AND K<>68) THEN 410
420 PRINT CHR$(147):FOR Y=0 TO 5:MS=WS(Y)
430 POKE 214,24:PRINT:GOSUB 3000:FOR NY=1 TO 25
440 PRINT:FOR D=1 TO 60:NEXT D,NY,Y
450 FOR D=1 TO 1000:NEXT D
460 PRINT CHR$(147):LM=16:FOR Y=1 TO 15
470 MS=WS(Y+5):T=LEN(MS):RM=38-T
480 FOR X=RM TO LM STEP -1:POKE 214,Y-1:PRINT
490 PRINT TAB(X);MS;SPS;:FOR D=1 TO 20:NEXT D,X

```

```

500 FOR D=1 TO 100:NEXT D,Y
510 POKE S+24,0:PRINT CHR$(9):END
1000 POKE 214,0:PRINT:FOR Y=1 TO 13
1010 PRINT TAB(MS(0));"O SUPER";CHR$(64+Y);
1020 PRINT TAB(MS(1));"O SUPER";CHR$(77+Y)
1030 NEXT Y:IF TR<>25 OR GF THEN RETURN
1040 POKE 214,14:PRINT:MS="PRESS <G> TO GUESS."
1050 GOSUB 3000:RETURN
2000 POKE 214,CY+TM:PRINT:PRINT TAB(MS(CX));0$;
2010 GOSUB 4000:IF K<>13 AND K<>68 THEN 2140
2020 SD=100:GOSUB 6000
2030 IF CP=8 OR RND(1)>.65 THEN RETURN
2040 FOR D=1 TO 200:NEXT D
2050 DM=(K=68):T=Z(CP):PT=ABS(T)
2060 V=T+100*SGN(T)*(PT>100)
2070 CS="I AM "+L$(ABS(PT>100))+CHR$(65+CP+V)
2080 IF CP<>18 AND CP<>19 THEN 2110
2090 IF CP=18 THEN CS=CS+AS(0)+CHR$(71):GOTO 2110
2100 CS="I AM "+AS(1)+CHR$(78)
2110 CS=CS+"":GOSUB 5000:IF CT(CP)=1 THEN 2010
2120 CT(CP)=1:TR=TR+1:IF TR<>25 THEN 2010
2130 GOSUB 1040:GOTO 2010
2140 IF K<>81 THEN 2210
2150 PRINT CHR$(147);
2160 MS="ARE YOU SURE YOU WANT TO QUIT?":GOSUB 3000
2170 GOSUB 4000:IF K<>89 AND K<>78 THEN 2170
2180 PRINT CHR$(147)
2190 IF K=89 THEN POKE S+24,0:PRINT CHR$(9):END
2200 GOSUB 1000:GOTO 2000
2210 DX=(K=74)-(K=76):DY=(K=73)-(K=75)
2220 IF DX+DY=0 THEN RETURN
2230 POKE 214,CY:PRINT:PRINT TAB(MS(CX));"O";
2240 CX=CX+DX:CY=CX-2*((CX<0)-(CX>1))
2250 CY=CX+DY:CY=CX-13*((CY<0)-(CY>12))
2260 CP=CX*13+CY:GOTO 2000
3000 PRINT SPC(20-LEN(MS)/2);MS:RETURN
4000 GET KS:IF KS="" THEN 4000
4010 K=ASC(KS):RETURN
5000 CS=CS+SPS:FOR X=1 TO LEN(CS)

```

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```

5010 K=ASC(MID$(CS,X,1))-32:IF K<>0 THEN 5030
5020 FOR D=1 TO 300:NEXT D:GOTO 5110
5030 IF K<0 OR K>58 THEN 5110
5040 QS=MC$(K):IF QS="" THEN 5110
5050 IF DM THEN POKE 214,20:PRINT:MS=QS:GOSUB 3000
5060 FOR J=1 TO LEN(QS):VS=MID$(QS,J,1)
5070 SD=60*(1-2*(VS="-")):GOSUB 6000
5080 FOR D=1 TO 60:NEXT D:NEXT J
5090 FOR D=1 TO 180:NEXT D
5100 IF DM THEN POKE 214,20:PRINT:MS=BL$:GOSUB 3000
5110 NEXT X:RETURN
6000 POKE S+4,17:FOR D=1 TO SD:NEXT D
6010 POKE S+4,16:RETURN
7000 DATA 0,0,*,*,*,*,0,*,*,*,*,0,0,*,*,*,*
7010 DATA *,*,*,*,*,*,0,0,*,*,*,*,*,*,*
7020 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
7030 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
7040 DATA 0,0,*,*,*,*,0
7050 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
7060 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
7070 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
8000 DATA 22,119,22,13,2,6,15,111,0,14,-109,-106
8010 DATA -105,-10,-12,-11,-11,-105,-108,-19
8020 DATA -109,-7,-13,-8,-122,-108
9000 DATA B,WPDJF,DNFT,PWFS,UIF,JOUSDPN!///
9010 DATA IFMMP,J,BN,UIF,TVQFS/,XIBU,B,SFMJFG,UP
9020 DATA GJOBMZ,TFF!///,B,)UVSO,UP,DPODMVTJPO*/

```

IBM PC & compatibles/Mort's Load

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Color/Graphics Monitor Adapter or Monochrome Printer card, w/Disk BASIC D2.00 or Advanced BASIC A2.00. Tandy 1000 w/GW-BASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67.)

```

10 DEF SEG=0:SCREEN 0,0:KEY OFF:RANDOMIZE
20 OP=1:DM=1
30 DIM AS(1),LS(1),MC$(58),WS(21)
40 DIM CT(25),MS(1),Z(25)
50 CB=16:BM=24:DL=100:MD=2.4:SW=80:OS=CHR$(2)
60 WIDTH SW:LOCATE ,0
70 SP$=CHR$(32):LS(0)="BELOW"+SP$
80 LS(1)="ABOVE"+SP$:AS(0)=SP$+"AND WEST OF"+SP$
90 AS(1)="EAST OF"+SP$:BL$=STRING$(8,32)
100 MS(0)=CB:MS(1)=3*CB+8:TR=0
110 FOR X=0 TO 58:READ MC$(X):NEXT X
120 IF OP=1 THEN 160
130 CLS:PRINT "What is your message?";
140 CS="":INPUT CS:IF CS="" THEN END
150 GOSUB 5000:GOTO 130
160 FOR X=0 TO 25:CT(0)=0:READ Z(X):NEXT X
170 FOR X=0 TO 20:MS="":READ TS
180 FOR Y=1 TO LEN(TS):KS=MID$(TS,Y,1)
190 MS=MS+CHR$(ASC(KS)-1):NEXT Y
200 WS(X)=MS:NEXT X:WS(6)=WS(6)+"!"
210 WS(17)=SP$:WS(21)=CHR$(50)+CHR$(66)
220 CX=0:CY=0:CP=0:GF=0
230 CLS:GOSUB 1000
240 GOSUB 2000:IF K<>71 OR TR<>25 THEN 240
250 CLS:NS=""
260 PRINT "What is the super's apartment number?";
270 TS="":INPUT TS:IF TS="" THEN 260
280 FOR X=1 TO LEN(TS):K=ASC(MID$(TS,X,1))
290 GOSUB 4020:NS=NS+CHR$(K):NEXT X
300 CLS:IF NS=WS(21) THEN 350
310 TS=BL$:FOR X=1 TO 15
320 LOCATE 12,1:MS=CHR$(7)+"WRONG!":GOSUB 3000
330 FOR D=1 TO DL/2:NEXT D:LOCATE 12,1
340 MS=TS:GOSUB 3000:NEXT X:GOTO 230
350 MS="Correct!":LOCATE 2,1:GOSUB 3000:PRINT
360 MS="(Maybe the super is home now...)"
370 GOSUB 3000:MS="Press <SPACE BAR> to continue."
380 GF=-1:LOCATE 23,1:GOSUB 3000
390 GOSUB 4000:IF K<>32 THEN 390
400 CLS:GOSUB 1000
410 GOSUB 2000:IF CP<>8 OR (K<>13 AND K<>68) THEN 410
420 CLS:FOR Y=0 TO 5:MS=WS(Y)
430 LOCATE 24,1:GOSUB 3000:FOR NY=1 TO BM

```

```

440 PRINT:FOR D=1 TO DL/2:NEXT D,NY,Y
450 FOR D=1 TO DL*10:NEXT D
460 CLS:LM=INT((SW-7)/2+1):FOR Y=1 TO 15
470 MS=WS(Y+5):T=LEN(MS):RM=SW-T-2
480 FOR X=RM TO LM STEP -1:LOCATE Y,X
490 PRINT MS:SP$:FOR D=1 TO DL/5:NEXT D,X
500 FOR D=1 TO DL:NEXT D,Y:END
1000 LOCATE 2,1:FOR Y=1 TO 13
1010 PRINT TAB(MS(0));"O SUPER";CHR$(64+Y);
1020 PRINT TAB(MS(1));"O SUPER";CHR$(77+Y)
1030 NEXT Y:IF TR<25 OR GF THEN RETURN
1040 LOCATE 16,1:MS="PRESS <G> TO GUESS."
1050 GOSUB 3000:RETURN
2000 LOCATE CY+2,MS(CX):PRINT OS;
2010 GOSUB 4000:IF K<>13 AND K<>68 THEN 2140
2020 SOUND 100,10:SOUND 32767,1
2030 IF CP=8 OR RND>.65 THEN RETURN
2040 FOR D=1 TO DL*2:NEXT D
2050 DM=(K=68):T=Z(CP):PT=ABS(T)
2060 V=T+100*SGN(T)*(PT>100)
2070 CS="I AM "+LS(ABS(PT>100))+CHR$(65+CP+V)
2080 IF CP<>18 AND CP<>19 THEN 2110
2090 IF CP=18 THEN CS=CS+AS(0)+CHR$(71):GOTO 2110
2100 CS="I AM"+AS(1)+CHR$(78)
2110 CS=CS+"":GOSUB 5000:IF CT(CP)=1 THEN 2010
2120 CT(CP)=1:TR=TR+1:IF TR<25 THEN 2010
2130 GOSUB 1040:GOTO 2010
2140 IF K<>81 THEN 2200
2150 CLS
2160 MS="Are you sure you want to quit?":GOSUB 3000
2170 GOSUB 4000:IF K<>89 AND K<>78 THEN 2170
2180 CLS:IF K=89 THEN END
2190 GOSUB 1000:GOTO 2000
2200 DX=(K=74)-(K=76):DY=(K=73)-(K=75)
2210 IF DX+DY=0 THEN RETURN
2220 LOCATE CY+2,MS(CX):PRINT "O";
2230 CX=CX+DX:CY=CY-2*((CX<0)-(CX>1))
2240 CY=CY+DY:CY=CY-13*((CY<0)-(CY>12))
2250 CP=CX*13+CY:GOTO 2000
3000 PRINT TAB((SW-LEN(MS))/2);MS:RETURN
4000 POKE 1050,PEEK(1052)
4010 KS=INKEY$:IF KS="" THEN 4010 ELSE K=ASC(KS)
4020 K=K-32*(K>96)*(K<123):RETURN
5000 CS=CS+SP$:FOR X=1 TO LEN(CS)
5010 K=ASC(MID$(CS,X,1)):GOSUB 4020:K=K-32
5020 IF K<>0 THEN 5040
5030 SOUND 32767,MD*6:GOTO 5120
5040 IF K<0 OR K>58 THEN 5120
5050 QS=MC$(K):IF QS="" THEN 5120
5060 IF DM THEN LOCATE 20,1:MS=QS:GOSUB 3000
5070 FOR J=1 TO LEN(QS):VS=MID$(QS,J,1)
5080 SOUND 450,MD*(1-2*(VS="-"))
5090 SOUND 32767,MD:NEXT J
5100 SOUND 32767,MD*3
5110 IF DM THEN LOCATE 20,1:MS=BL$:GOSUB 3000
5120 NEXT X:RETURN
6000 DATA 0,0,*,*,*,*,0,*,*,*,*,0,0,*,*,*,*
6010 DATA *,*,*,*,*,*,0,0,*,*,*,*,*,*,*
6020 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
6030 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
6040 DATA 0,0,*,*,*,*,0
6050 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
6060 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
6070 DATA *,*,*,*,*,*,*,*,*,*,*,*,*,*,*
7000 DATA 22,119,22,13,2,6,15,111,0,14,-109,-106
7010 DATA -105,-10,-12,-11,-11,-105,-108,-19
7020 DATA -109,-7,-13,-8,-122,-108
8000 DATA B,WPDJF,DNFT,PWFS,UIF,JOUSDPN!///
8010 DATA IFMMP,J,BN,UIF,TVQFS/,XIBU,B,SFMJFG,UP
8020 DATA GJOBMZ,TFF!///,B,)UVSO,UP,DPODMVTJPO*/

```

Tandy Color Computer/Mort's Load

```

10 CLEAR 1000
20 OP=1:DM=1
30 DIM AS(1),LS(1),MC$(58),WS(20)
40 DIM CT(25),MS(1),Z(25)

```



```

50 SP$=CHR$(32):O$=CHR$(111)
60 LS(0)="BELOW"+SP$
70 LS(1)="ABOVE"+SP$:AS(0)=SP$+"AND WEST OF"+SP$
80 AS(1)="EAST OF"+SP$:BL$=SP$
90 FOR X=2 TO 8:BL$=BL$+SP$:NEXT X
100 MS(0)=4:MS(1)=20:TR=0
110 FOR X=0 TO 58:READ MC$(X):NEXT X
120 IF OP=1 THEN 160
130 CLS:PRINT "WHAT IS YOUR MESSAGE";
140 CS="":INPUT CS:IF CS="" THEN END
150 GOSUB 5000:GOTO 130
160 FOR X=0 TO 25:CT(0)=0:READ Z(X):NEXT X
170 FOR X=0 TO 19:MS="":READ TS
180 FOR Y=1 TO LEN(TS):K$=MID$(TS,Y,1)
190 MS=MS+CHR$(ASC(K$)-1):NEXT Y
200 W$(X)=MS:NEXT X:W$(6)=W$(6)+"!"
210 W$(17)=SP$:W$(20)=CHR$(50)+CHR$(66)
220 CX=0:CY=0:CP=0:GF=0
230 CLS:GOSUB 1000
240 GOSUB 2000:IF K<>71 OR TR<>25 THEN 240
250 CLS:MS=""
260 PRINT "WHAT IS THE SUPER'S APARTMENT"
270 TS="":INPUT "NUMBER":TS:IF TS="" THEN 260
280 FOR X=1 TO LEN(TS):K=ASC(MID$(TS,X,1))
290 GOSUB 4010:MS=MS+CHR$(K):NEXT X
300 CLS:IF MS=W$(20) THEN 350
310 TS=BL$:FOR X=1 TO 15
320 PRINT@269,"WRONG!";:SOUND 170,1
330 FOR D=1 TO 40:NEXT D
340 PRINT @269,TS;:NEXT X:GOTO 230
350 MS="CORRECT!":PRINT:GOSUB 3000:PRINT
360 MS="(MAYBE THE SUPER IS AT HOME ...)"
370 GOSUB 3000:MS="PRESS <SPACE BAR> TO CONTINUE."
380 GF=-1:PRINT@448,"";:GOSUB 3000
390 GOSUB 4000:IF K<>32 THEN 390
400 CLS:GOSUB 1000
410 GOSUB 2000:IF (CP<>8) OR (K<>13 AND K<>68) THEN 410
420 CLS:FOR Y=0 TO 5:MS=W$(Y)

```

```

430 PRINT@448,"":GOSUB 3000:FOR NY=1 TO 16
440 PRINT:FOR D=1 TO 100:NEXT D,NY,Y
450 FOR D=1 TO 750:NEXT D
460 CLS:LM=12:FOR Y=1 TO 14
470 MS=W$(Y+5):T=LEN(MS):RM=30-T
480 FOR X=RM TO LM STEP -1
490 PRINT@32*(Y-1)+X,MS;SP$;
500 FOR D=1 TO 25:NEXT D,X
510 FOR D=1 TO 75:NEXT D,Y:END
1000 FOR Y=1 TO 13
1010 PRINT TAB(MS(0));"O SUPER";CHR$(64+Y);
1020 PRINT TAB(MS(1));"O SUPER";CHR$(77+Y)
1030 NEXT Y:IF TR<>25 OR GF THEN RETURN
1040 PRINT@422,"PRESS <G> TO GUESS.":RETURN
2000 PRINT@32*CY+MS(CX),"":PRINT O$;
2010 GOSUB 4000:IF K<>13 AND K<>68 THEN 2140
2020 SOUND 50,3
2030 IF CP=8 OR RND(0)>.65 THEN RETURN
2040 FOR D=1 TO 150:NEXT D
2050 DM=(K=68):T=Z(CP):PT=ABS(T)
2060 V=T+100*SGN(T)*(PT>100)
2070 CS="I AM "+L$(ABS(PT>100))+CHR$(65+CP+V)
2080 IF CP<>18 AND CP<>19 THEN 2110
2090 IF CP=18 THEN CS=CS+AS(0)+CHR$(71):GOTO 2110
2100 CS="I AM "+AS(1)+CHR$(78)
2110 CS=CS+"":GOSUB 5000:IF CT(CP)=1 THEN 2010
2120 CT(CP)=1:TR=TR+1:IF TR<>25 THEN 2010
2130 GOSUB 1040:GOTO 2010
2140 IF K<>81 THEN 2200
2150 CLS
2160 MS="ARE YOU SURE YOU WANT TO QUIT?":GOSUB 3000
2170 GOSUB 4000:IF K<>89 AND K<>78 THEN 2170
2180 CLS:IF K=89 THEN END
2190 GOSUB 1000:GOTO 2000
2200 DX=(K=74)-(K=76):DY=(K=73)-(K=75)
2210 IF DX+DY=0 THEN RETURN
2220 PRINT@32*CY+MS(CX),"O";
2230 CX=CX+DX:CY=CY+2*((CX<0)-(CX>1))
2240 CY=CY+DY:CY=CY-13*((CY<0)-(CY>12))

```

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```

2250 CP=CY*13+CY:GOTO 2000
3000 PRINT TAB((32-LEN(MS))/2);MS:RETURN
4000 KS=INKEY$:IF KS="" THEN 4000 ELSE K=ASC(K$)
4010 K=K-32*(K>96)*(K<123):RETURN
5000 C$=C$+SP$:FOR X=1 TO LEN(C$)
5010 K=ASC(MID$(C$,X,1)):GOSUB 4010:K=K-32
5020 IF K<>0 THEN 5040
5030 FOR D=1 TO 360:NEXT D:GOTO 5120
5040 IF K<0 OR K>58 THEN 5120
5050 Q$=M$(K):IF Q$="" THEN 5120
5060 IF DM THEN PRINT@448,"";MS=Q$:GOSUB 3000
5070 FOR J=1 TO LEN(Q$):V$=MID$(Q$,J,1)
5080 SOUND 150,1.6*(1-2*(V$="-"))
5090 FOR D=1 TO 60:NEXT D:NEXT J
5100 FOR D=1 TO 180:NEXT D
5110 IF DM THEN PRINT@448,"";MS=BL$:GOSUB 3000
5120 NEXT X:RETURN
6000 DATA 0,0,-----,0,-----,0,0,*-----
6010 DATA -----,-----,0,0,-----,-----,*-----
6020 DATA -----,-----,*-----,-----,-----,-----,-----
6030 DATA -----,-----,-----,-----,*-----,0
6040 DATA 0,0,-----,0
6050 DATA *,-----,*,-----,*,-----,-----,-----,*,-----
6060 DATA -----,-----,-----,*,-----,-----,*,-----,-----
6070 DATA -----,-----,*,-----,-----,-----
7000 DATA 22,119,22,13,2,6,15,11,0,14,-109,-106
7010 DATA -105,-10,-12,-11,-11,-105,-108,-19
7020 DATA -109,-7,-13,-8,-122,-108
8000 DATA B,WPJDF,DPNFT,PWF$UIF,JOUFSDPN!///
8010 DATA IFMMF,J,BN,UIF,TVQFS,XIBU,B,SFMJFG,UP
8020 DATA GJOBBMZ,TF!///,B,)UVS0!UP,PD0PMVTJPO*/

```

Macintosh w/Microsoft BASIC 2.0 or 2.1/Mort's Log

```

10 CALL TEXTFONT(4):CALL TEXTSIZE(9):CALL TEXTFACE(64)
:CALL TEXTMODE(0):RANDOMIZE TIMER
50 CB=14:BM=27:DL=180:MD=2.4:SW=71:OS=CHR$(165)
60 WIDTH SW:WINDOW 1,,(0,38)-(512,338)
2000 CALL TEXTMODE(2):LOCATE CY+2,MS(CX):PRINT "0";CHR
$(8);OS$:CALL TEXTMODE(0)
2020 SOUND 100,9:FOR D=1 TO 1100:NEXT D
2220 CALL TEXTMODE(2):LOCATE CY+2,MS(CX):PRINT OS$:CHR
$(8);"0";CALL TEXTMODE(0)
4000 K$=INKEY$
4010 IF K$="" THEN 4000 ELSE K=ASC(K$)
5030 FOR D=1 TO MD*666:NEXT D:GOTO 5120
5080 DUR=MD*(1-2*(V$="-")):SOUND 250,DUR:FOR D=1 TO DU
R*111:NEXT D
5090 FOR D=1 TO MD*111:NEXT D:NEXT J
5100 FOR D=1 TO MD*333:NEXT D

```

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PCjr w/Cartridge BASIC J1.00. Tandy 1000 w/GW-BASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67.)

50 PLAY "MF":CB=6:BM=24:DL=100:MD=2.4:SW=40:OS=CHR\$(2)

It's easy to convert this program to work something like an automatic telegraph. Type in any sentence you choose, and it will translate it into Morse code. Simply change line 20 from:

20 OP=1:DM=1
to
20 OP=0:DM=1
or
20 OP=0:DM=0

Then, when you RUN the altered program, you'll be asked, WHAT IS YOUR MESSAGE? Type in any sentence that doesn't include commas or colons. (The length of the sentence is limited, depending on your computer.)

When you press RETURN or ENTER at the end of your sentence, you'll hear its Morse code equivalent. And unless you changed DM=1 TO DM=0 in line 20, the "dots" and "dashes" that make up the code for each character will be displayed on the screen as the code is sounded.

You can quit this version of the program by just pressing RETURN or ENTER when asked, WHAT IS YOUR MESSAGE? without first typing in a sentence.

Use this bonus program to quiz your friends, or ask them to quiz you. Make sure that the person who's trying to learn Morse code can't see the screen when the sentence is typed in. If the display option is chosen, he or she can look at the screen after RETURN or ENTER is pressed to see, as well as hear, the dot-and-dash patterns.

See the conclusion above for an explanation of what's been going on in the Rotex building. The building super is super, and he is located in apartment 2B. Here's how the tenants are situated in the building: 1. 1A, T. 1B, D. 2A, I. 2B, g. 3A, A. 3B, F. 4A, W. 4B, L. 5A, J. 5B, U. 6A, X. 6B, B. 7A, P. 7B, K. 8A, E. 8B, S. 9A, G. 9B, H. 10A, V. 10B, M. 11A, I. 11B, R. 12A, C. 12B, Z. 13A, Y. 13B.

When you've gotten Morse code messages from each tenant except the super (SUPER), press \odot to guess will appear on your screen. Answer "2B" to the question WHAT IS THE SUPER'S APARTMENT NUMBER? and you'll get the message CORRECT (MAKES THE SUPER IS HOME NOW . . .) The CoCo message is slightly different. When you ring SUPER again after seeing that message, you'll get a surprise!

"You don't know how long I've been waiting for this box!" the super exclaimed as he ripped it open. "Look at them! Speech chips! Aren't they beautiful? Now all that's left to do is a quick diagnostic check, and then I'll just plug these into my 'boys' and ship them off for their first day in the field!"

As Mort turned to walk out of the super's apartment, he caught an eerie reflection in the brass plaque on the door of the apartment across the hall. He saw the super pluck a tiny chip out of the box, carefully place it in the side of his head, and begin to speak: "Testing, one, two, three, four. Good morning, Mr. Smith. Do you need some service today?"

... another human face! I hope you didn't have too much difficulty finding me. That silly old-fashioned building directory won't hold more than six letters per name, so I'm afraid the 'intendant' got cut off. The super went on to explain to Mort that Roteux was using the old apartment building as a secret test site for a new line of maintenance robots called Robomaintendents. The robots were programmed to do simple plumbing and repair tasks. Each had been given the name "Super" along with a suffix denoting its model number. The only function left to develop in the robots was a communication system. Up to now, explained the super, there had been no need for the robots to communicate other than to beep and buzz over the building intercom system. The primitive language of Morse code had been quite sufficient for providing locations and positions within the building during the experimental stage.

This Month!!

GAME STRATEGY, page 78
MICROTONES, page 80
COMPUCOPIA, page 81
CONTEST, page 81

Play a
Jazzy Riff
with Boogie Bass
Page 80

Edited by Anne Krueger

K-POWER

FOR THE COMPUTER GENERATION

Making It 'Little' in The Software Biz

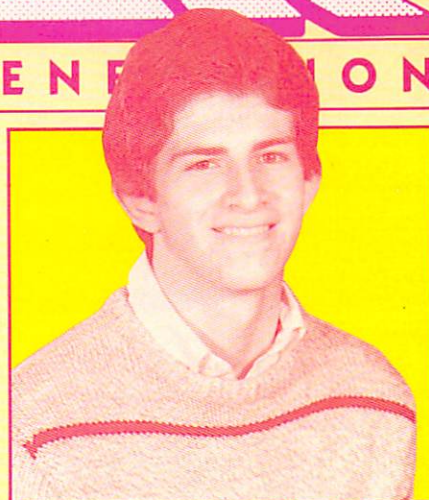
K-POWER is always searching long and hard for readers who are doing something special with their computers such as tutoring, helping their community, school, or family, or creating or selling their own software. Sixteen-year-old reader Eric Evans is one of those special readers. Eric makes a particularly important point in this essay: Not everyone is going to become the next David Crane or software star of his or her dreams. You don't have to "make it big" to profit monetarily and emotionally from your programming hours and expertise. Here's his story:

This isn't another typical kid's success story. You won't find my name on a nationally available software package, or even in a major catalog. I have been creating and selling software locally in my hometown of Muncie, Indiana. But my programs' sales are not about to give the likes of Spinnaker any worries! I thought a story about a small-scale but very fulfilling computing experience would be of interest to other computer lovers like me.

I have an Apple computer and am very interested in machine language bit-mapped graphics and new ways to create sound on the Apple's limited speaker. My story really began when I wrote a simple tutorial program for my mother, who is a first-grade teacher. By the time it was finished, it was much longer than I'd originally anticipated and was too difficult for first graders. (Programs have a mysterious way of growing!) I ended up showing it to a few teachers around my school and they liked it a lot. Excited by this praise, I added two more tutorials and what I call *The Science Pack* was born!

This package contains a program about tooth care and structure, a program covering the planets of the solar system, and a lesson on simple plant structure. The tutorials feature text and high-resolution color graphics and each ends with a quiz to test the students' knowledge.

After showing *The Science Pack* to the school's computer manager, he suggested that I make an appointment with a woman in charge of software sales at a teaching supply store in my hometown. Present-



Eric Evans is happy being a "small shot"

ing a program to my mother and other teachers was easy; showing it to a salesperson made me nervous! But after she saw my programs, the software sales manager was very friendly and put my fears to rest. She was excited about the package but suggested some minor changes.

Within a month the changes were completed, errors were removed, and the final touches added. The store was happy with my package. We then determined how it would be sold, the price, what percentage of profit the store would receive, and how the sales manager would contact me—quite a lesson in business!

So, as you can see, I'm not a software star. But I *am* a sixteen-year-old with quite a bit of extra spending money and a great deal more programming skill than I started with!

—ERIC EVANS

Software Scoop!!!

Attention **Rocky** fans! It's time to show your stuff! Strap on your Everlast boxing gloves and get into the fray with the new game from **Accolade Inc.** called **Fight Night** (\$35 for the Apple II family, \$30 for Commodore 64/128). The object of the game, naturally, is to win a boxing

match with an impressive KO (Knock Out) or by decision; either way, every jab, body blow, and super blow to your opponent really counts. Your opponents range from the sort of wimpy Dip Stick and the bowler-sporting British Bulldog (he was a lamppost in his previous life) to the champ: the Bronx Bomber. So what're you waiting for? Don't whine, you could've been a contender . . . Get into the ring! . . . So you

thought **Intellivision** was dead, huh? Not so, according to **INTV Corporation**—a company that's still producing video games for Intellivision owners. Here's their new lineup for spring and summer (\$20 each): **World Championship Baseball**—for those who like to slide into home in a puff of dust, **Thunder Castle**—for lovers of dragons and the dark ages, and **Karate Champ**—for black belts into video combat . . .

STRATEGY

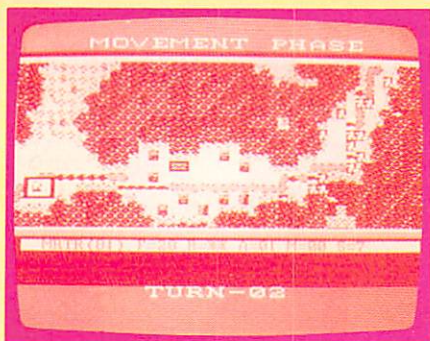
TIPS, TRICKS, AND HINTS

NAM

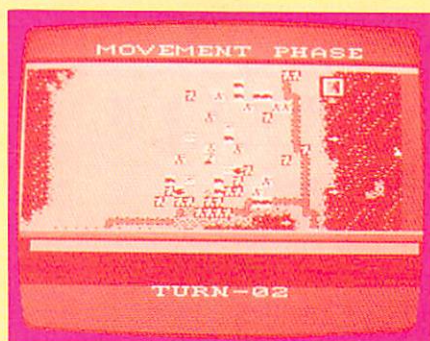
SSI. Tactical/Strategy. Your mission: Lead your troops through a se-

ries of battles, set in the dense jungles of Vietnam. Only through careful manipulation of your forces and firepower can you hope to suc-

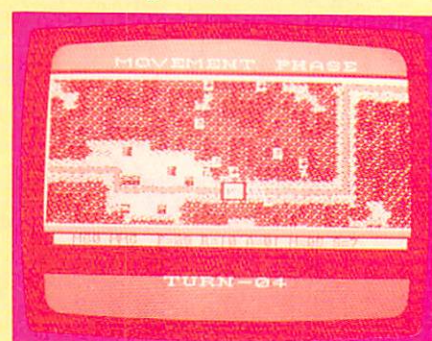
ceed against an almost invisible foe. In other words, eliminate the enemy . . . if you can find him (hints and game for Atari and C64).



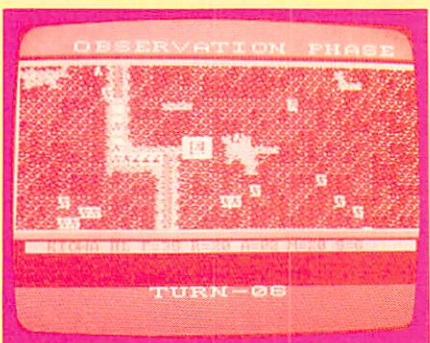
➤ **Scenario 1—Soui Cat:** At the start, you're completely at the mercy of the enemy, and you shouldn't count on your trucks for survival. After the enemy's initial volley, move your helicopter into the safety of the jungle to the north, and load all of your troops and ammunition, except for your mortar (cannon), into your ACAVs (Armored Cavalries). Next, get all of your reinforcements to the scene as quickly as possible. Since the enemy troops don't have much strength in this scenario, concentrate your fire on individual units.



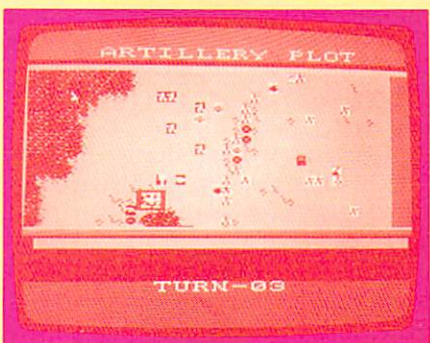
➤ **Scenario 2—Ap Bau Bang:** On your first observation phase, dig in all the troops surrounding the fire-base. On your movement phase, place all of your armor on the sides where the most enemies are. Concentrate your fire on the enemy units closest to you, and if they're still alive, force them back with assaults using heavy armor. If you keep this process up, there should be no problem in repulsing the enemy.



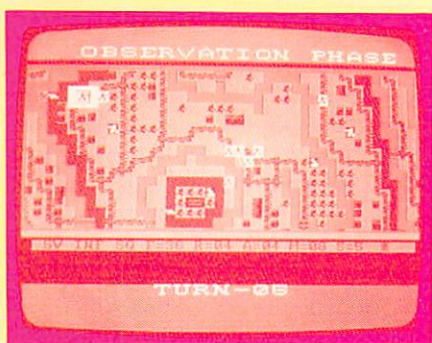
➤ **Scenario 3—Ia Drang:** Load up your troops and set them down on the roads leading into Ia Drang or the larger clearings. While your ground troops are occupied, let your copters search out and destroy the enemies in the jungles to the north and south. Use your artillery to take out enemy machine guns and anti-tank guns, as these are the only enemies that can hurt your helicopters from a distance.



➤ **Scenario 4—Tuy Hoa:** Send the U.S. troops through the southern entrance to the caves, and the Korean troops through Tuy Hoa and into the northern entrance. As the jungle is too vast for your troops to make a thorough search for enemies, use your helicopters to sweep through and root out hidden foes. Once an enemy location is known, pound it with artillery, mortars, and the copters. Don't waste the infantry's time, as you will need it to clear the caves.



➤ **Scenario 5—Ben Het:** Dig in your perimeter troops, and start moving the others toward the front line. Concentrate your fire on enemy infantry and support weapons, as the tanks are bad shots at long range. Once you have dispatched the majority of the infantry, the tanks will start moving in. Try to pick them off one at a time (most infantry and machine guns are ineffective against armor unless they are directly next to it), using all available firepower, and assaulting them with your own tanks.



➤ **Scenario 6—Hue:** Dig in all troops except the SV Rangers and SV Paratroopers. Move the artillery piece as far east as it can go. Allocate your artillery to picking off lone machine gun and anti-tank units, so that you don't have to take up precious infantry. Use the paratroopers to clean out the Palace of Peace and the surrounding area. Send your armor (which moves the fastest) to outlying areas to search for enemy troops.

—DAVID LANGENDOEN, 17, Brooklyn, New York

BRIMSTONE

Synapse/Broderbund. Text Adventure. Your mission: Journey through the underworld in search of the phrase that will free your soul (hints and game for Apple and IBM).

When on the crest at the start of your quest, wait for the wind to end the flag's rest.

Don't give your money to Lord Hodge or Fum; they would just spend it on poker or rum.

Thoughts of summer and spring should suffice, when you are, alas, trapped in the ice.

Thou art a knight, noble and brave; thou needest not trinkets, like some common knave.

If an ape is left dozing, he'll make not a peep; but if spoken to nicely, he'll talk in his sleep.

When braving the fury, where searing flames glow, just relax, chill out, and go with the flow.

A flower at home won't speak every day, but a flower in Ulro might have something to say.

Talking to Fum may seem useless at best, but a few words about words may aid in your quest.

Wait long by the river, thine coin in thy stay; for Charon gives no rides to those who don't pay.

When lost in a cave of darkness and gloom, ask the advice of a friend in the room.

The Green Knight is fierce, as mean as they come, but with a few magic words he is sure to succumb. —DAMON OSGOOD, 18, Brooklyn, New York

H I N T H O T L I N E

GHOST TOWN, Adventure International (All). Your mission: Collect 13 treasures that are hidden in an Old West town.

Add a little splice to your wires (but don't add the wires to your inventory).

Act like an Indian as well as you know how.

Ghosts rarely perform for you, so be appreciative.

Room service could serve you well.

Hold your nose and commence digging.

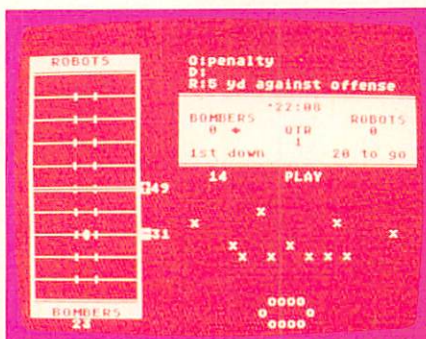
The 13 treasures are: Cash Box, Go Board, Derringer, Necklace, Gold Dust, Silver Spurs, \$200, Gold Coin, Silver Bullet, Gold Nugget, Silver Cup, Tom-Tom, Furs. —SCOTT GRIFFIN, 15, and TROY STOVALL, 14, Greenville, Kentucky; TEDD GULEWICZ, 15, Apple Valley, California; ROBERT LABESTE, 12, Woodside, New York.

SUPERBOWL SUNDAY, Avalon Hill (C-64). Sports Simulation. Your mission: Match up some of the greatest superbowl teams ever in this football simulation.

For an unbeatable offense, use Dallas '78 for your team. Select Short Pass, and 3-Backs for your formation. Throw the pass from Staubach to D. Pearson. This play is guaranteed for a gain of at least 12 yards, and no defense can stop it. —DARIN PADUR, 14, Tacoma, Washington

COMPUTER QUARTERBACK

SSI (C-64). Sports Simulation. Your mission: Draft your own football teams and play friends or the computer in this real-time football simulation.



Here's a way to start out with more money than the computer gives you. 1) Prepare an initialized SSI save game disk. 2) Put it in the drive and then type in and run the following program.

```
10 DIM A(11)
20 INPUT "TEAM'S NAME";NS
30 OPEN 2,8,2,"@0:"+"NS+",S,W"
40 B=1
50 PRINT#2,B
60 FOR I=2 TO 11
70 A(I)=400
80 PRINT#2,A(I)
90 NEXT
100 CLOSE 2
```

When prompted, enter a team name, and wait for the disk to stop accessing. Load the game disk and then use the team you just created. It should be worth quite a bit more than normal. —ERIC BROWN, 15, Penn Laird, Virginia

Q & A

In Ultima IV, how do I get the white stone? —HONG YU TUNG, 14, New York, New York

The stone is in a clearing in the center of a mountain range. You must use the balloon to fly over the mountains and land in the clear terrain.

In King's Quest, how do I get the cheese? —ADAM STEIGHNER, 12, Sarver, Pennsylvania; JEFF SCHUBELER, 14, West Chester, Ohio; CHRIS PORELL, 11, Glendale, Arizona.

The cheese can be found in the cupboard in the witch's house. (To enter the house, you must be protected. The fairy's blessing works well.)

In King's Quest, after I've gotten all the treasures, I go to the King. He always tells me to come closer, how do I do this? —ANDY STRAIN, 8, Lincoln, Nebraska

Try bowing.

In Ghost Town, how do I get the gold nugget? —VINNY RECCA, 14, Glendale, New York

In the mine, GO DOWN, GET AND LIGHT CANDLE, GO DOWN, and DIG ROOF.

We need a few good hints! Help K-POWER readers be all that they can be by sending us hints for your favorite games. We have all the *Zork* and *Ultima III* hints we can handle, but we'll gladly publish and pay \$10 for hints we've not heard of. Send them to Hint Hotline, c/o K-POWER, 730 Broadway, New York, NY 10003.



MUSIC PROGRAMS BY JOEY LATIMER

"Doodly op o-dwee dop o-wa waaa skiddly dum da do dum," I sang as I saved the new Microtones program to disk. "It makes me want to tap my feet," said K-POWER editor Anne Krueger when she heard it.



Listen to *Boogie Bass* and you just may start tapping and singing, too. "Boogie" plays a "walking" twelve-bar bass line, common to old-time barrelhouse blues and boogie-woogie music. If you play an instrument (or scat-sing), jamming with *Boogie Bass* can help improve your licks. Hackers can add harmony parts, customize the bass line, and incorporate *Boogie Bass* into their own programs.

APPLE II SERIES/BOOGIE BASS

```
10 DIM N(48)
20 FOR I = 0 TO 36:READ A:POKE 768+I,A:NEXT I
30 FOR I = 1 TO 48:READ N(I):NEXT I
40 HOME:VTAB 12:HTAB 14:PRINT "*BOOGIE BASS*"
50 FOR I = 1 TO 48
60 POKE 8,N(I):POKE 6,60:CALL 768
70 NEXT I:GOTO 50
999 REM --MACHINE CODE FOR PRODUCING SOUND--
1000 DATA 165,8,201,2,176,2,169,2,74,133,10,164,8
1010 DATA 240,8,173,48,192,234,234,136,208,251,56
1020 DATA 165,7,229,10,133,7,176,235,198,6,208,231,96
1999 REM --NOTE DATA--
2000 DATA 243,193,182,173,182,144,136,128
2010 DATA 121,136,144,162,182,193,217,243
2020 DATA 182,144,136,128,121,136,144,162
2030 DATA 243,193,182,173,162,144,136,128
2040 DATA 162,128,121,108,182,144,121,144
2050 DATA 243,136,204,114,217,121,230,128
```

ATARI 400/800, 600/800XL, & 130XE/ BOOGIE BASS

```
10 DIM N(48):POKE 752,1:PRINT CHR$(125)
20 FOR I=1 TO 48:READ V:N(I)=V:NEXT I
30 POSITION 13,10:PRINT "*BOOGIE BASS*"
40 FOR I=1 TO 48:SOUND 0,N(I),10,8
50 FOR DE=1 TO 110:NEXT DE
60 NEXT I:GOTO 40
```

```
1000 DATA 243,193,182,173,182,144,136,128
1010 DATA 121,136,144,162,182,193,217,243
1020 DATA 182,144,136,128,121,136,144,162
1030 DATA 243,193,182,173,162,144,136,128
1040 DATA 162,128,121,108,182,144,121,144
1050 DATA 243,136,204,114,217,121,230,128
```

COMMODORE 64 & 128 (C 64 MODE)/BOOGIE BASS

```
10 DIM H(48),L(48):S=54272
20 FOR I=0 TO 23:POKE S+I,0:NEXT I
30 FOR I=1 TO 48:READ H(I),L(I):NEXT I
40 PRINT CHR$(147):POKE 214,10:PRINT
50 PRINT TAB(13);"*BOOGIE BASS*"
60 POKE S+24,15:POKE S+5,9:POKE S+6,0
70 FOR I=1 TO 48
80 POKE S,L(I):POKE S+1,H(I):POKE S+4,17
90 FOR DE=1 TO 175:NEXT DE:POKE S+4,16
100 NEXT I:GOTO 70
1000 DATA 4,48,5,71,5,152,5,237,5,152,7,12
1010 DATA 7,119,7,233,8,97,7,119,7,12
1020 DATA 6,71,5,152,5,71,4,180,4,48,5,152
1030 DATA 7,12,7,119,7,233,8,97,7,119
1040 DATA 7,12,6,71,4,48,5,71,5,152,5,237
1050 DATA 6,71,7,12,7,119,7,233,6,71,7,233
1060 DATA 8,97,9,104,5,152,7,12,8,97,7,12
1070 DATA 4,48,7,119,4,251,8,225,4,180,8,97
1080 DATA 4,112,7,233
```

IBM PC & COMPATIBLES/BOOGIE BASS

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Disk BASIC D2.00 or Advanced BASIC A2.00. IBM PCjr w/Cartridge BASIC J1.00. Tandy 1000 w/GWBASIC 2.02 version 01.01.00. (Users of version 00.05.00 please see note on page 67.) It should also work on many other PC compatibles.

```
10 DIM N(48):KEY OFF:CLS
20 FOR I=1 TO 48:READ N(I):NEXT I
30 DEF SEG=&H40:VM=PEEK(&H10) AND 48:DEF SEG
40 IF VM=32 THEN WIDTH 40 ELSE WIDTH 80
50 LOCATE 12,35+20*(VM=32):PRINT "*BOOGIE BASS*"
60 FOR I=1 TO 48:SOUND N(I),6:NEXT I:GOTO 60
1000 DATA 131,165,175,185,175,220,233,247
1010 DATA 262,233,220,196,175,165,147,131
1020 DATA 175,220,233,247,262,233,220,196
1030 DATA 131,165,175,185,196,220,233,247
1040 DATA 196,247,262,294,175,220,262,220
1050 DATA 131,233,156,277,147,262,139,247
```

TANDY COLOR COMPUTER/BOOGIE BASS

```
10 DIM N(48)
20 FOR I=1 TO 48:READ N(I):NEXT I
30 CLS:PRINT@234,"*BOOGIE BASS*"
40 FOR I=1 TO 48:SOUND N(I),5:NEXT I:GOTO 40
1000 DATA 89,125,133,140,133,159,165,170,176,165,159
1010 DATA 147,133,125,108,89,133,159,165,170,176,165
1020 DATA 159,147,89,125,133,140,147,159,165,170,147
1030 DATA 170,176,185,133,159,176,159,89,165,117,180
1040 DATA 108,176,99,170
```

VIC-20/BOOGIE BASS

```
10 DIM N(48):POKE 36878,15:PRINT CHR$(147)
20 FOR I=1 TO 48:READ N(I):NEXT I
30 POKE 214,10:PRINT:PRINT TAB(5);"*BOOGIE BASS*"
40 FOR I=1 TO 48:POKE 36875,N(I)
50 FOR DE=1 TO 200:NEXT DE:NEXT I:GOTO 40
1000 DATA 135,159,163,167,163,183,187,191,195,187
1010 DATA 183,175,163,159,147,135,163,183,187,191
1020 DATA 195,187,183,175,135,159,163,167,175,183
1030 DATA 187,191,175,191,195,201,163,183,195,183
1040 DATA 135,187,151,199,147,195,143,191
```


COMPUCOPIA

SHORT PROGRAMS BY JOHN JAIN SCHIGG

This short routine draws regular polygons—triangles, squares, pentagons, hexagons, etc.—on your computer's high-resolution screen. Use it on its own, or incorporate it into your own graphics programs. To use the routine, enter the number of sides (three for a triangle, four for a square, five for a pentagon, etc.), the length of each side (in pixels), and the X and Y coordinates of the center of the polygon you wish to draw.

IBM PC & COMPATIBLES/POLYGON CONSTRUCTOR

This program has been tested and found to work on the following computers and hardware configurations, using the BASICs shown: IBM PC w/Color/Graphics Monitor Adapter, w/Disk BASIC D2.00 or Advanced BASIC A2.00, IBM PCjr w/Cartridge BASIC J1.00, Tandy 1000 w/GW-BASIC 2.02 version 01.01.00. (If you use version 00.05.00, please see note on page 67). It should also work on many other PC compatibles.

```
10 XN=0:XM=319:YN=0:YM=199:PI=3.14159
20 WIDTH 40:KEY OFF:CLS
30 PRINT "NUMBER OF SIDES":INPUT NS
40 PRINT "LENGTH OF EACH SIDE":INPUT LS
50 PRINT "X AND Y COORDINATES":PRINT "OF CENTER":INPUT X,Y
60 IF NS<3 OR LS<=0 OR X<XN OR X>XM OR Y<YN OR Y>YM THEN
  PRINT "TRY AGAIN.":GOTO 30
70 AN=2*PI/NS:R=LS/(2*SIN(AN/2))
80 AI=INT(PI/(2*AN)+.5)*AN
90 IF Y+R*SIN(AI)>YM OR Y-R*SIN(AI)<YN OR X+R*XM THEN
  110
100 IF (NS/2=INT(NS/2) AND X-R=XN) OR NS/2<>INT(NS/2)
  AND X-R<COS(AI/2)>=XN THEN 140
110 PRINT "PART OR ALL OF THAT POLYGON"
120 PRINT "WILL BE DRAWN OUT-OF-BOUNDS."
130 PRINT "PLEASE TRY AGAIN.":GOTO 30
140 SCREEN 1,1:CLS
150 X1=X+R:Y1=Y
160 FOR I=AN TO 2*PI+.001 STEP AN
170 X2=X+R*COS(I):Y2=Y+R*SIN(I)
180 LINE(X1,Y1)-(X2,Y2)
190 X1=X2:Y1=Y2:NEXT I
```

MODIFICATIONS FOR OTHER COMPUTERS

APPLE II SERIES w/32K RAM/POLYGON CONSTRUCTOR

Use the IBM PC & compatibles version, changing lines 10, 20, 140, and 180 to read as follows.

```
10 XN = 0:XM = 255:YN = 0:YM = 191:PI = 3.14159
20 TEXT:HOME
140 HGR:HCOLOR= 3
180 HPLLOT X1,Y1 TO X2,Y2
```

ATARI 400/800, 600/800XL, & 130XE w/32K RAM/POLYGON CONSTRUCTOR

Use the IBM PC & compatibles version, changing lines 10, 20, 140, and 180 to read as follows.

```
10 XN=0:XM=319:YN=0:YM=191:PI=3.14159
20 PRINT CHR$(125);
140 GRAPHICS 8:COLOR 1
180 PLOT X1,Y1:DRAWTO X2,Y2
```

TANDY COLOR COMPUTER W/EXTENDED COLOR BASIC/POLYGON CONSTRUCTOR

Use the IBM PC & compatibles version, changing lines 10, 20, 140, and 180 to read as follows.

```
10 XN=0:XM=255:YN=0:YM=191:PI=3.14159
20 CLS
140 PMODE 1,1:PCLS:SCREEN 1,1
180 LINE(X1,Y1)-(X2,Y2),PSET
```

Also, add line 200.

```
200 GOTO 200:REM --PRESS <BREAK> TO STOP PROGRAM--
```

ADVENTURE GAME MAP CONTEST



So you think you know a lot about adventure games, right? Please let us in on your know-how! If you're a follower of our Strategy and Hint Hotline sections, you know K-POWER

sometimes includes maps of favorite games. Well, we need your map-making help. Send your clearly written *original* maps (no King's Quest maps, please) to Adventure Game Map Contest, c/o K-POWER, 730 Broadway, New York, NY 10003. We'll award \$25 to the three maps

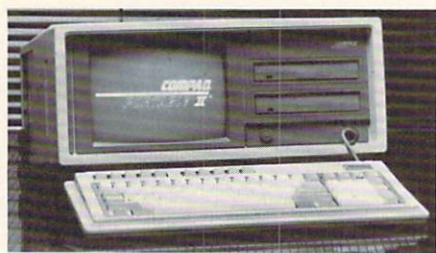
that give the most clues clearly and cleverly. Plus, we'll give you credit and publish the map in a future issue of K-POWER! Remember, this should be a map of your creation, not something copied from a game box, literature, or another magazine. Good luck!

Name _____	Sex _____
Address _____	
City _____	State _____ Zip _____
Telephone (____) _____ Birthdate _____	
Computer(s) I own _____	
The map I've drawn is for (name of game, computer game runs on) _____	
Explanation of map (if necessary) _____	

WHAT'S IN STORE

NEW HARDWARE ANNOUNCEMENTS

COMPUTERS



Compaq Portable II

MANUFACTURER: Compaq Computer Corp.

ADDRESS: 20555 F.M. 149, Houston, TX 77070; (713) 370-7040

PRICE: \$3,199

Compaq, the fastest growing company in U.S. history (see the "Buyer's Guide to Computer Systems"), has a new, fast, high-powered computer, the Portable II. It does everything the original best-selling Portable did, but it's 30 percent smaller, 17 percent lighter (23 to 26 pounds), and 400 percent faster. It runs virtually all software written for the IBM PC, XT, and AT computers, at speeds three to five times faster.

You can buy the Compaq Portable II with two 360K disk drives, or one floppy and a 10-megabyte hard-disk drive, which stores about 5,000 pages worth of data. The computer comes with either 256K or 640K RAM, which can be expanded to 2.1 megabytes (without using an expansion slot), and to 4.1 megabytes using one of the two expansion slots. Though the Portable has a built-in 9-inch green-screen monitor (which runs color graphics software!), you can connect an RGB monitor if you wish. A 220-volt power board is available for use in Europe.

Toshiba Portable PC T1100

MANUFACTURER: Toshiba Corp.

ADDRESS: Toshiba America Inc. Information Systems Division, 2441 Michelle Drive, Tustin, CA 92680; (714) 730-5000

PRICE: \$1,999

"The compact PC market has never reached its potential because manufacturers could not offer full IBM compatibility, could not achieve acceptable display readability, and priced the units too high, among other reasons," says John Rehfeld, vice president and general manager

of Toshiba America. "That's history, with the Toshiba system."

Toshiba, of course, is not the first company to think it could solve the mysterious laptop computer market, where only the Tandy Model 100 has really made any impact. Toshiba does claim that the T1100 is an "IBM clone in its smallest form"—nine pounds—and that may be a selling point.

The T1100 has 512K RAM, and a built-in 720K 3.5-inch disk drive. The liquid-crystal display (LCD) is high resolution (640 x 200 pixels), and displays 80 characters by 25 lines of text. The advanced LCD technology eliminates surface reflection and provides sharp contrast, according to Rehfeld.



You can connect a parallel printer, a second floppy disk drive, and an RGB color monitor. Unlike many laptops, the T1100 does not come with a built-in modem; however, you can add one as an option.

Toshiba America, a \$1 billion company, is a division of Toshiba Corp. of Japan, a \$14 billion multinational corporation.

MISCELLANEOUS

Cauzin Softstrip System

MANUFACTURER: Cauzin Systems Inc.

ADDRESS: 835 South Main St., Waterbury, CT 06706; (203) 573-0150

PRICE: \$200

The Cauzin Softstrip Reader provides a new way to enter data into a computer's memory. The Reader, a scanning device that connects to the cassette port or RS-232 port on Apple II, IBM PC, and Macintosh, reads a piece of paper that has specially encoded data. Once in the computer, the data can be saved to disk, printed out, etc. Each 9.5-inch Softstrip holds 5,500 bytes (about three type-

written pages). These strips can be linked together to hold longer programs or files.

The Softstrip system eliminates the tedium of keying BASIC programs or spreadsheet templates into the computer. In theory, publishers could distribute software and files on paper or in magazines rather than on disks.

However, there is now little software in Softstrip format, and there probably won't be much more until enough people buy the Softstrip Reader. And the Reader is too expensive to purchase without any available software. Right now, the Softstrip system is a promising technology that suffers from the chicken-and-egg syndrome.


Titan Accelerator IIe/ Pinpoint Software

MANUFACTURER: Titan Technologies

ADDRESS: 310 West Ann St., Ann Arbor, MI 48104-1337; (313) 662-8542

PRICE: \$299

Users who feel they've gone as far as they can go with their Apple IIe may have forgotten why they bought the machine in the first place—so they could keep expanding it. Titan, the company that introduced the "accelerator" concept to the computer industry, has been speeding up Apples since 1983. The Accelerator IIe increases processing speed up to three-and-a-half times and adds 80K RAM. It's compatible with virtually all Apple software, and works in conjunction with other popular hardware, such as Apple II Memory Expansion Card, RamWorks, Profile modems, and clock works.

If you buy the Accelerator before July 15, you get a free copy of *Pinpoint*, a desktop accessories package. It has eight programs that run in "background" mode while you use *AppleWorks* or other selected ProDOS applications programs. *Pinpoint* (enhanced 128K IIe required) has an appointment calendar, calculator, communications window, envelope addresser, graphmerge, notepad, telephone dialer, and typewriter. For instance, if you create an *AppleWorks* file and wish to send it by modem, you can use *Pinpoint's* communications functions to send it without booting up communications software. 

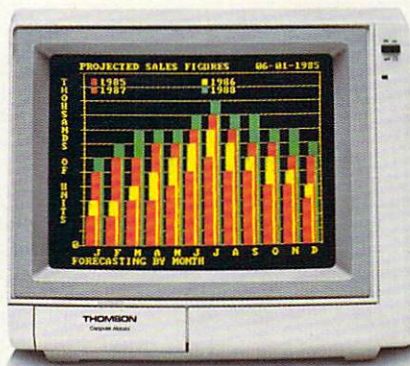
A S I G H T F O R S O R E E Y E S T H O M S O N

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Model CM 31311SL 12" diagonal, .31mm dot pitch RGBI color monitor with text switch and non-glare tinted screen.

THOMSON



WHAT'S IN STORE SOFTWARE GUIDE

QUICK TAKES ON SOFTWARE— NEW AND NOTEWORTHY

Welcome to FAMILY COMPUTING's Software Guide, the most comprehensive listing available of two dozen of the newest, most noteworthy, and/or best programs on the market. Our reviewers include families from all over the country who have judged the software according to the following criteria: long-term benefits and applications, adaptability, and advantages of using a computer for a given task. More detailed reviews follow the chart. Unless otherwise noted, all programs are in disk format; minimum memory requirements are 48K for Apple II series, 48K for Atari, 128K for IBM PC/PCjr or compatibles, and 128K for Macintosh. Please note that "Atari" alone refers to the 800/XL/XE series, while "Atari ST" denotes the 520ST or 1040ST computers.

Here's a rundown of the rating categories and what they mean: **O** = Overall performance, given the limitations and capacities of the particular computer for which the software is intended. **D** = Documentation, or the instructions and literature that accompany a program. **EH** = Error-handling, the software's capacity to accommodate errors made by the user—an especially important consideration with software for younger users. **PS** = Play system, in the games reviews, the quality of the game design and the game's playability. **GQ** = Graphics quality, also evaluated in light of each particular brand's graphics capabilities. **EU** = Ease of use after the initial learning period, which varies from computer to computer. **V** = Value for money, or how the software measures up to its price.

HOME BUSINESS & PRODUCTIVITY

Title Publisher Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings					
				O	D	EH	GQ	EU	V
ASK SAM Seaside Software, Inc. 538 Parade Drive Corpus Christi, TX 78412 (512) 991-2019 (800) 327-5726 \$150 ©1985	An easy-to-learn, yet powerful data base with flexibility in record structure (for example, you don't have to use fields for your data). Contains complete sort and math functions.† —MORRIS	IBM PC/PCjr.* 2nd disk drive or hard disk optional.	30-day warranty. \$15 thereafter. User makes backup.	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	N/A	A	★ ★ ★ ★
THE BARD'S "PRO-AM" WRITING SYSTEM Writing Software International 110 E. Broadway, Suite 600 Missoula, MT 59802 (406) 543-3141 \$70 ©1985	The "Pro-Am" in the title probably stands for "professional-amateur," because this value-packed word processor offers a level for every age and ability. Includes a spelling checker, word counter, embedded commands, and more.† —SOLOMON	Apple IIe/IIc. 128K, 2nd disk drive required for 80-column version.	90-day warranty. \$10 thereafter. User makes backup.	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	N/A	E	★ ★ ★ ★
D.E.G.A.S. Batteries Included 30 Mural St. Richmond Hill, Ontario, Canada L4B-1B5 (416) 881-9941 \$40 ©1985	Take full advantage of the Atari ST's high-resolution color graphics with D.E.G.A.S.—Design and Entertainment Graphic Arts System. Contains dozens of fine features, such as fill patterns and a font editor.† —DAVENPORT	Atari 520ST. Mouse.	One year warranty. \$10 thereafter. User makes backup.	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	E	★ ★ ★ ★
MINDREADER Businesssoft, Inc. 703 Giddings Ave., Suite M4 Annapolis, MD 21401 (301) 263-1962 \$189 ©1985	A word processor like no other, <i>MindReader</i> anticipates the words you write; type in the first few letters, and the program suggests the complete word to you. Offers desktop accessories, too.† —RASKIN	IBM PC/PCjr.*	90-day warranty. \$20 thereafter.	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	N/A	E	★ ★ ★ ★
PRINT MASTER Unison World Inc. 2150 Shattuck Ave., #902 Berkeley, CA 94704 (415) 848-6666 \$35-\$60 ©1985	All sorts of computer artists will appreciate this <i>The Print Shop</i> clone. Create posters, greeting cards, calendars, banners, and stationery. Comes with eight fonts, 11 borders, and over 100 clip art illustrations. —SUMMERS	Reviewed on IBM PC/PCjr.* Also for C64/128, Apple, Atari 520ST. Printer.	90-day warranty. \$5 thereafter.	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	E	★ ★ ★ ★

RATINGS KEY **O** Overall performance; **D** Documentation; **EH** Error-handling; **GQ** Graphics quality; **EU** Ease of use; **V** Value for money; ★ Poor; ★★ Average; ★★★ Good; ★★★ Excellent; N/A Not applicable; E Easy; A Average; D Difficult; † Longer review follows chart.

*Titles listed for the IBM PC/PCjr will also run on many IBM PC compatibles; due to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.

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- C-7 Adventure Master
- C-8 A PACALIPS NOW
- C-9 Bits, Pieces and Clues
- C-10 Board Games I
- C-11 Board Game Challengers
- C-12 Chess Champion
- C-13 Crazy Corners
- C-14 Galactic Empire Builder
- C-15 Just Games (With a Twist!)
- C-16 Land, Sea & Air Adventures
- C-17 Maze Madness!
- C-18 Peg Out (The Cribbage Game)
- C-19 Star Trek Evolution
- C-20 Trivia Quest
- C-21 Open—

- Golfing Royal St. George's
- C-22 Alien
- C-23 Bulge—Battle for Antwerp
- C-24 Wizard & the Princess
- C-25 Ulysses & the Golden Fleece
- C-26 Mission Asteroid
- C-27 Passport to London
- C-28 Passport to Paris

Home Management

- C-29 Tax Record Organizer
- C-30 Vital Data Keeper
- C-31 Wordmaster Senior
- C-32 Master Word
- C-33 Personal Spreadsheet
- C-34 gBASE, database manager
- C-35 My 64—A Computer Tutor
- C-36 Commodore 64 Utilities
- C-37 Financial Analyzers

- C-38 Home and Business Card File
- C-39 Home Expense Manager
- C-40 Home Finance Organizer 1
- C-41 Home Finance Organizer 2
- C-42 Home Income Manager
- C-43 Home Money Manager
- C-44 Home Property Manager
- C-45 Money Minder
- C-46 Personal File Keeper
- C-47 Personal Investment Manager
- C-48 Family Tree
- C-49 Electronic Scheduler
- C-50 Pro Financial Organizer
- C-51 Recipe Box
- C-52 Tax Record Organizer

Education Series

- C-53 Number Builder
- C-54 Number Chaser
- C-55 Hide & Seek
- C-56 Picture This
- C-57 Let's Count
- C-58 Time Trucker
- C-59 Fancy Face
- C-60 Math Manor
- C-61 Typing Tutor
- C-62 Speed Reader

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- C-63 Why?
- C-64 When?
- C-65 The Three Bears
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- C-67 Baby Animals
- C-68 Hoppy the Curious Kangaroo
- C-69 Wild Animals
- C-70 Tom Thumb
- C-71 I Was a Second Grade Werewolf
- C-72 Tough Eddie

For the Apple II+, IIc, IIe

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- A-1 Beginner's Cave, an Adventure
- A-2 Cave of the Mind, an Adventure
- A-3 River Adventure, an Adventure
- A-4 Fore!, Golfing Simulator
- A-5 Lady Luck
- A-6 Space Adventure
- A-7 Classic Games
- A-8 Android Invasion
- A-9 Championship Gambler
- A-10 Chess Champion
- A-11 Memory Quest
- A-12 Wizard & the Princess
- A-13 Ulysses & the Golden Fleece
- A-14 Mission Asteroid
- A-15 Passport to London
- A-16 Passport to Paris

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- A-17 The Addresser—Mailing List
- A-18 Financial Planner
- A-19 General Ledger
- A-20 Monthly Budgeter
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- A-22 Securities Portfolio
- A-23 Recipe Box
- A-24 Database Manager
- A-25 Disk Library
- A-26 Electronic Calendar
- A-27 Electronic Phone Book
- A-28 Family Tree
- A-29 Personal Spreadsheet
- A-30 JWriter, Word Processor
- A-31 Utility Master
- A-32 Vital Data Keeper
- A-33 Typing Tutor

- A-34 Tax Record Organizer
- A-35 Checkbook Balancer
- A-36 JBase

Education Series

- A-37 Mr. Math
- A-38 Speed Reading
- A-39 Beginning Counting
- A-40 Counting Skills
- A-41 Addition I
- A-42 Addition II
- A-43 Addition III
- A-44 Addition IV
- A-45 Subtraction I
- A-46 Subtraction II
- A-47 Subtraction III
- A-48 Multiplication I
- A-49 Multiplication II
- A-50 Multiplication III
- A-51 Division I
- A-52 Division II
- A-53 Division III
- A-54 Division IV

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Education Series

- A-55 Why?
- A-56 When?
- A-57 The Three Bears
- A-58 Gingerbread Man
- A-59 Baby Animals
- A-60 Hoppy the Curious Kangaroo
- A-61 Wild Animals
- A-62 Tom Thumb
- A-63 I Was a Second Grade Werewolf
- A-64 Tough Eddie

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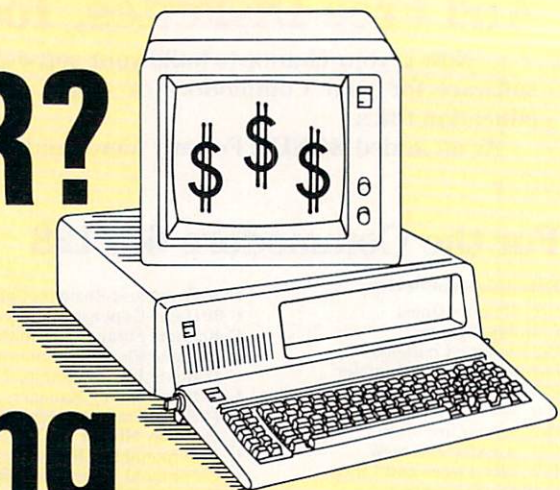
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EDUCATION/FUN LEARNING										
Title Publisher Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings						
				O	D	EH	GQ	EU	V	
CAR BUILDER Weekly Reader Family Software 245 Long Hill Road Middletown, CT 06457 (203) 638-2400 \$40 ©1985	Design cars from the inside out. Select engine, chassis, and more, then mix and match with customized body. When your car is complete, test it out; the computer rates your design. † —ELTGROTH	Apple. Printer, color monitor recommended.	90-day warranty. \$10 for backup.	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	★ ★ ★ ★	D	★ ★ ★ ★	
FASTYPE Press A Software P.O. Box 364 Jerome, AZ 86331 (602) 634-2688 \$40 ©1985	A no-frills tutorial designed to teach touch typing. While <i>Fastype</i> lacks pizzazz, it does the job. Covers finger positions and exercises. Self-explanatory. Best for motivated adults. —RASKIN	Reviewed on IBM PC/PCjr. Also for Tandy 1000, and Models III/4.	30-day warranty. \$8 thereafter.	★ ★	★ ★	★ ★	N/A	E	★ ★	
FRACTION FUEL-UP DLM Software One DLM Park Allen, TX 75002 (214) 248-6300 \$30 ©1985	Solve word problems using fractions to refuel and launch spaceships. Doesn't teach fractions, but provides opportunities for practice that are far more absorbing than most textbooks. For ages 8+ —ELTGROTH	Reviewed on Apple. Also for C 64/128. Joystick optional.	6-month warranty. \$15 for backup.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	A	★ ★ ★	
GARFIELD, EAT YOUR WORDS Random House Software 201 E. 50th St. New York, NY 10022 (800) 638-6460 \$40 ©1985	We're Hangman freaks at our house, and it didn't take us long to figure out that Garfield was playing a variation of our favorite word game. You get trivia clues, too. For ages 8+ —ELTGROTH	Apple. Color monitor optional.	90-day warranty. \$5 thereafter up to one year. \$10 for backup.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★	
THE GREAT INTERNATIONAL PAPER AIRPLANE CONSTRUCTION KIT Simon & Schuster, Inc. One Gulf Western Plaza New York, NY 10023 (212) 333-5800 \$30-\$40 ©1985	With a book on paper airplane design, this disk helps you print and fold any of 13 award-winning designs. Most of our planes flew as they were supposed to. Planes can be decorated by using one of many popular drawing programs. —FRANK	Reviewed on 64K Apple. Also for C 64/128, IBM PC/PCjr, * Macintosh. Color graphics card required (IBM).	30-day warranty. \$5 thereafter up to one year. User makes backup.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	D	★ ★ ★	
MAC-A-MUG Shaherazam P.O. Box 26731 Milwaukee, WI 53226 (414) 442-7503 \$60 ©1985	Choose from dozens of features—heads, eyes, noses, ears, mouths, and chins—to make a face. With great details, like eyeglasses, beards, and jewelry. Move faces into <i>MacPaint</i> for touch-ups. For all ages. —AKER	512K Macintosh. 2nd disk drive. Printer optional.	Unlimited warranty. \$5 for backup.	★ ★	★ ★	★ ★	★ ★	E	★ ★	
PROGRAM WRITER The Software Touch 9842 Hibert St., #192 San Diego, CA 92131 (619) 549-3091 \$50 ©1985	Makes writing and editing BASIC programs on Apple a breeze instead of a chore. Lets you insert, find and replace, split a line, and more. Works with mouse. † —LATIMER	Apple.	User makes backup.	★ ★ ★	★ ★ ★	★ ★ ★	N/A	A	★ ★ ★	
PROKOFIEV'S PETER AND THE WOLF MUSIC Fisher-Price, a division of Spinnaker Software One Kendall Square Cambridge, MA 02139 (617) 494-1200 \$25 (C 64); \$40 (Apple) ©1985	Seven music games, each featuring a different character from the Prokofiev classic, to develop young, discriminating ears. Well done, but if a youngster doesn't know the piece, much of the game's appeal is lost. For ages 3-7. —MORGENSTERN	Reviewed on Apple. Also for C 64. Joystick optional.	30-day warranty. \$12 thereafter.	★ ★ ★	★ ★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★	
TRADING POST Sunburst Communications 39 Washington Ave. Pleasantville, NY 10570 (914) 769-5030 \$59 ©1985	A logic game in which you trade shapes in order to get ones that meet the "goal" set by the computer. These addictive puzzles for ages 9+ help develop analytical and strategic skills. —ELTGROTH	Reviewed on Apple. Also for C 64/128, IBM PC/PCjr, * Tandy Color Computer.	Unlimited warranty.	★ ★ ★	@ ★ ★	★ ★ ★	★ ★ ★	E	★ ★ ★	

RATINGS KEY O Overall performance; D Documentation; EH Error-handling; GQ Graphics quality; EU Ease of use; V Value for money; ★ Poor; ★★ Average; ★★★ Good; ★★★★ Excellent; N/A Not applicable; @ Documentation excellent, but better for school use than home. E Easy; A Average; D Difficult; † Longer review follows chart.

*Titles listed for the IBM PC/PCjr will also run on many IBM PC compatibles; due to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.

GAMES REVIEWS BY JAMES DELSON

Title Publisher Price	Brief description	Hardware/ Equipment required	Backup policy	Ratings						
				O	D	PS	GQ	EU	V	
AUTODUEL Origin Systems, distributed by Electronic Arts 1820 Gateway Drive San Mateo, CA 94404 (415) 571-7171 \$50 ©1985	You're behind the wheel of a heavily armed vehicle as you cruise America's highways, circa 2030. Perform courier jobs, participate in a gladiator-style arena, and work for the FBI. One of the year's best for ages 10+.	64K Apple. Joystick.	Unlimited warranty. \$5 if user-damaged.	★	★	★	★	A	★	★
BORROWED TIME Activision 2350 Bayshore Frontage Road Mountain View, CA 94049 (415) 960-0410 \$30-\$50 ©1985	As a private detective, you're in jeopardy from the first moments of this text/graphic mystery. Complex play system requires much thought, but there's plenty of action. For gamers ages 12+.	Reviewed on Macintosh. Also for Amiga, Apple, Atari 520 ST, C 64/128, IBM PC/PCjr.*	90-day warranty. \$7.50 thereafter.	★	★	★	★	D	★	★
CHAMPIONSHIP STAR LEAGUE BASEBALL Gamestar, a division of Activision (See above for address and phone.) \$25-\$35 ©1985	Choose from three types of pitchers, then vary their pitches. You also get to bat, field, and even pick runners off base. It's hard to beat the computer, but that gives the game a longer life. For 1-2 players, ages 10+.	Reviewed on Macintosh. Also for Apple, Atari, C64/128. Joystick.	90-day warranty. \$7.50 thereafter.	★	★	★	★	D	★	★
THE EIDOLON Epyx 1043 Kiel Court Sunnyvale, CA 94089 (408) 745-0700 \$30-\$35 ©1985	State-of-the-art graphics in a simple strategy/arcade game for one player. <i>The Eidolon</i> is good for youngsters (ages 8+) and beginners; it's a fast-moving, easy-to-learn fantasy.	Reviewed on Apple. Also for Atari, C 64/128. Joystick, color monitor.	90-day warranty. \$5 thereafter.	★	★	★	★	E	★	★
GOLDEN OLDIES Software Country, distributed by Electronic Arts (See above for address and phone.) \$30-\$35 ©1985	Includes four hits from the early days of micros: <i>Adventure</i> (the original text adventure), <i>Eliza</i> (simulates a session with a shrink), <i>Life</i> (a graphics/mathematical simulation), and <i>Pong</i> (the first arcade game). Dated, but fun for ages 12+.	Reviewed on Apple. Also for Atari, Amiga, C64/128, IBM PC/PCjr, 512K Macintosh.	30-day warranty. \$5 thereafter.	★	★	★	★	A	★	★
KAMPFGRUPPE SCENARIO DISK 1 Strategic Simulations, Inc. 1046 N. Rengstorff Ave. Mountain View, CA 94043 (415) 964-1353 \$20 ©1985	These five new scenarios extend the use of your original <i>Kampfgruppe</i> strategy and tactics game (which you need to use this disk). Players control German and Russian units in World War II urban combat.	Reviewed on Apple. Also for Atari, C64/128.	30-day warranty. \$10 thereafter.	★	N/A	★	★	D	★	★
NAM Strategic Simulations, Inc. (See above for address and phone.) \$40 ©1985	A tactical war game that simulates six different engagements against Viet Cong and North Vietnamese troops, from fire-base defense to house-to-house fighting. With a fluid play system. For ages 12+.	Reviewed on Atari. Also for Apple, C 64/128.	30-day warranty. \$10 thereafter. 14-day money back guarantee.	★	★	★	★	A	★	★
SUPER HUEY Cosmi 415 N. Figueroa St. Wilmington, CA 90744 (213) 835-9687 \$20-\$30 ©1985	This lively flight simulator offers gamers (ages 8+) the chance to train on a Huey helicopter, then perform rescue, combat, or exploratory missions. Easy to use, with full instrumentation.	Reviewed on C 64/128. Also for Apple. Joystick.	90-day warranty (includes user-damaged). \$10 thereafter.	★	★	★	★	E	★	★
UNDER FIRE! Avalon Hill 4517 Harford Road Baltimore, MD 21214 (301) 254-9200 \$60 ©1985	This comprehensive, World War II construction set is a real breakthrough. Combines an excellent map maker with a flexible army designer. Can be slow in combat. For ages 12+.	Apple. Joystick optional.	90-day warranty. \$10 thereafter.	★	★	★	★	D	★	★
ZORRO Datasoft 19808 Nordhoff Place Chatsworth, CA 91311 (818) 886-5922 \$30-\$40 ©1985	In the best B-movie tradition, you control the masked, heroic Zorro through a 20-screen adventure. Fight duels, leap from balconies, and solve a mystery. For ages 8+.	Reviewed on C 64/128. Also for Apple, Atari. Joystick.	90-day warranty. \$7.50 thereafter.	★	★	★	★	A	★	★

RATINGS KEY O Overall performance; D Documentation; PS Play system; GQ Graphics quality; EU Ease of use; V Value for money; ★ Poor; ★★ Average; ★★★ Good; ★★★ Excellent; N/A Not applicable; E Easy; A Average; D Difficult; + Longer review follows chart.

*Titles listed for the IBM PC/PCjr will also run on many IBM PC compatibles; due to the proliferation of compatibles, check with the publisher of the program or your dealer for compatibility.

WHAT'S IN STORE SOFTWARE REVIEWS

On the following pages, you'll find in-depth reviews of some of the programs listed in the Software Guide. Refer back to the Guide on page 84 for information such as backup policies and addresses of software publishers.

HOME BUSINESS & PRODUCTIVITY

askSam

HARDWARE REQUIREMENTS: IBM PC/PCjr.
PUBLISHER: Seaside Software
PRICE: \$150

The reason this software package is called "askSam" is never mentioned, but for a data base whose features read like a wish list of desirable characteristics for filing programs, does a name even matter?

askSam's strongest feature may be the flexibility it gives you in structuring records. This is especially helpful if you're trying to track chunks of information such as notes for a paper or project. Many data bases limit fields (such as name and address) to fixed locations in each record. With askSam, though, you don't have to use fields at all, and if you do, they can be located anywhere on-screen and can be any length up to a single record (about one-screen's worth of information).

In other words, unlike some other data-base software, askSam does not force you to guess how you want your information structured before the data is even entered. Instead, it allows you to make changes in your setup as you go along, without typing in the data all over again. By also letting you merge files, split files into subfiles, and overlay one record with another and save the result, askSam increases your flexibility.

When you are ready to retrieve information, you can print whole records or just parts. Full search functions (including wild cards for partial matches) and sort capabilities (by date as well as alphabetically and numerically) make it easy to extract only the data you need.

Despite its many features, askSam is still very easy to learn and to use. The documentation is excellent and includes two good tutorials.

Are there any drawbacks? Yes, a few. The cost is a little high, especially if your needs are simple. Also, limiting a record's size to one screen goes against askSam's flexibility in

other areas. And only one file can be active at a time; there are no windows for simultaneously viewing multiple files.

But with all its features (more than we've enumerated), this is an excellent data base. Ease of use makes askSam ideal for families, yet its power makes it appropriate for professionals and small business people, too.

—TONY MORRIS

The Bard's "Pro-Am" Writing System

HARDWARE REQUIREMENTS: Apple IIe/IIc.
PUBLISHER: Writing Software International
PRICE: \$70

The title here suggests that if *The Bard*—William Shakespeare, the Bard of Avon—were alive today, he'd trade in his quill and parchment for *The Bard's "Pro-Am" Writing System*. Is that just the publisher's hyperbole? Let's see how this word processor might have served Shakespeare.

Measure for measure, there's enough in this writing package to tempt even the least likely Elizabethan: interactive tutorials, three separate word processors of increasing sophistication, a spelling checker, and excellent documentation.

The Apprentice level requires no prior experience. A budding young Shakespeare could load the software and begin composing sonnets immediately. On-screen advice is always available, and "lists of things you can do" serve as menus for this easy-to-use word processor. As needs grow, the Experienced Apprentice level is waiting in the wings to add advanced features such as find-and-replace and spell checking, without sacrificing simplicity.

The full-strength Professional level (in both 40- and 80-column versions) offers the sophistication of more expensive word processors. It combines some excellent new features with several old favorites.

I can choose to control the Professional-level Bard either through menus or mnemonic commands, as I like it. There's a word counter to check manuscript length, an Orthographer (that's a spelling checker), and a restore command to undo accidental deletions. I can create up to 15 blocks of text and store them for speedy insertion at any point. At my disposal are a choice of print styles, a typewriter mode, and embedded

printer commands (for special formatting).

I found only one problem; the View Page option displays blocks on the screen instead of real words. Also, no explanation exists for the "Pro-Am" of the title; but, after all, what's in a name? A word processor this good by any other name . . .

—GWEN SOLOMON

D.E.G.A.S.

HARDWARE REQUIREMENTS: Atari 520ST.
PUBLISHER: Batteries Included
PRICE: \$40



D.E.G.A.S. stands for "Design and Entertainment Graphic Arts System," which is a cute title for a great drawing program. As one of the first graphics packages available for the Atari 520ST, D.E.G.A.S. manages to put that computer's high-tech hardware to work for you with the kind of sophisticated results that make you ask, "Did I really do that?"

The Atari 520ST boasts a palette of 512 colors, up to 16 of which can be displayed on-screen at once. Combined with a resolution ranging from 320 x 200 pixels to 640 x 400 pixels (picture elements, or dots), the potential for graphic creativity is enormous. (Contrast those specs with the mere six colors and 280 x 192 pixels available on a 64K Apple in high-resolution mode.)

Unlike other mouse-controlled graphics programs—such as *MacPaint* or *Mouse Paint*—where the drawing area must share screen space with an icon-based menu, you alternate within D.E.G.A.S. from Menu screen to Drawing screen at the click of a mouse button. An uncluttered area for drawing makes the minor inconvenience of clicking back and forth seem unimportant.

Since we're building a new home, I worked with D.E.G.A.S. to help visualize some landscaping ideas. The cut-and-paste function let me move shrubs and trees around the on-

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				Versaform	43.50
				Video Toolbox	23.95
				Visable 6502	31.75
				Wilderness	38.95
				Winter Games	21.50
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EXPANDED		HARDWARE	
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WHAT'S IN STORE SOFTWARE REVIEWS

screen yard at will. A white picket fence didn't seem quite right, so with a few clicks, I changed it to a gray one to blend with the house.

As with most graphics programs, you'll find features for drawing lines, circles, and boxes, as well as a magnify mode (for pixel by pixel work) and the ability to change brush shape. Extra drawing enhancements include 60 built-in fill patterns (or design your own), a font editor, and a shadow feature for 3-D effects.

It's too bad that this otherwise excellent program is missing such helpful features as rotation and the ability to move objects between different screens. And my earlier version of *D.E.G.A.S.* was able to provide color printouts with an Epson printer only (not my brand); a disappointment, for sure, but more color printers have since been added by the publisher. All in all, though, *D.E.G.A.S.* represents a lot of power for a little money.

—KENT A. DAVENPORT

MindReader

HARDWARE REQUIREMENTS: 256K IBM PC.

PUBLISHER: Businesssoft, Inc.

PRICE: \$189

MindReader may not read your mind, but it will sure second-guess your fingers. A word processing package like no other, *MindReader* anticipates the words you're writing, and completes them for you. For example, if you type the letters "gar," the program guesses you might want the words "garbage," "garden," "garment," "garnish," or "garage." These choices appear on a pop-up menu on the screen. You simply select the number that corresponds to the word you want, and *MindReader* does the typing for you.

If you select a word like "move" from the list, you can change the tense (moved, moving) or the suffix (movable) with a single keystroke. By employing simple artificial intelligence techniques, *MindReader* monitors how you use English. It soon learns to give your most frequently used words top priority on each list of suggested completions.

Slow typists can benefit from *MindReader*, since they can choose words from a list and type a number faster than they can type the entire word. The number of keystrokes required to type a document is significantly reduced.

Because I'm a fast typist, however,

I didn't save much time with *MindReader*; in fact, it probably slowed me down. Better typists, who may balk at having words pop up and distract from the act of writing, can turn off the "word complete" capability. *MindReader* is filled with other good features that make it a fine choice for general word processing.

MindReader offers a lightning-quick feature that flags spelling mistakes as you type. A frequent phrase/glossary capability stores longer passages of text (such as your name and address), and lets you insert them with a single keystroke. There are desktop accessories, too, which include an index-card file, a calendar, a 60-day diary, and a calculator.

Beyond this cornucopia of features, *MindReader's* writing capabilities are good, but not outstanding. With limited page formatting commands, the program is better for letters than longer text. Still, when you add up the features—all of them so easy to use you may never open the manual—*MindReader* is one of the best all-around word processors I've seen.

—ROBIN RASKIN

EDUCATION/ FUN LEARNING

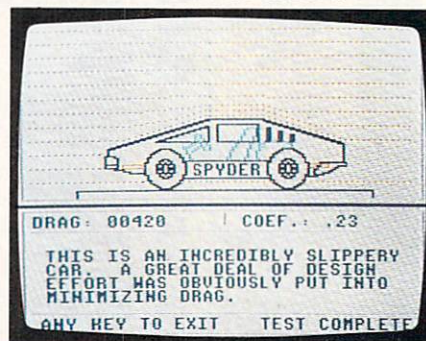
Car Builder

HARDWARE REQUIREMENTS: Apple.

PUBLISHER: Weekly Reader Family Software

PRICE: \$40

PUBLISHER'S SUGGESTED AGES: 8 +



The Weekly Reader folks surprised us this time. My youngest software testers had their eye on what they thought was the latest *Stickybear* program, but *Car Builder* is not for little guys—it's teenager turf.

Once a somewhat rocky initial learning period is over, *Car Builder* offers the potential for many hours of satisfying play. In designing cars from the inside out, you learn about

chassis style, weight restrictions, gear ratios, and other fascinating aspects of physics and engineering.

Begin in the Mechanical Design section, where you choose parts for the chassis, suspension, and tires. Information on the characteristics of each component is provided; you select the ones you want to achieve the effect you have in mind.

You then move to the Body Design menu, and then to the Modify Body menu, selecting and altering the roof, the front, and the rear of the car as you wish.

After your car is complete, test it with a wind tunnel or on the road, and print it out. An evening of work is well rewarded by an assessment that reads, "This car is a real road rocket," or "You have designed an incredibly slippery car."

A few warnings, however. Although the package is recommended for ages 8 to adult, we found that, unless an adult or older sibling is prepared to help them through it, younger kids had a rough time figuring out all the steps. Also, read the directions carefully before initializing a storage disk; you could erase your program disk by mistake.

For kids and their parents who enjoy building things or playing with cars, though, *Car Builder* offers a wonderful chance to expand their knowledge and have a good time, too. —MARLENE BUMGARNER ELTGROTH

Program Writer

HARDWARE REQUIREMENTS: Apple.
PUBLISHER: The Software Touch
PRICE: \$50

Writing and editing BASIC programs on my Apple II used to be a difficult chore. The problem was the unusual screen editing system built into Applesoft BASIC. Doing something as simple as inserting a letter into a line turned into a real test of perseverance. To avoid these editing shortcomings, I increasingly found myself retyping entire program lines. I must have wasted ten minutes every hour on lines that I could have edited easily on, let's say, an Atari or a Commodore computer. Then came *Program Writer*.

Program Writer is a utility program that lets you quickly write and edit Applesoft BASIC programs. With *Program Writer*, editing a BASIC program is much like using a word processor. You can even split a line in two, use a built-in calculator,

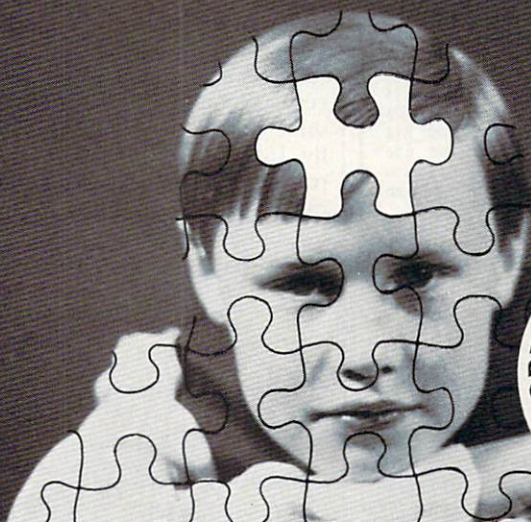
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SOFTWARE REVIEWS

print a list of variables, and more.

Fixing a line of BASIC with *Program Writer* is as easy as using the designated cursor keys (or a mouse if you have one) to position the cursor at the place in the line you want to fix. Once there, you can insert or replace text, delete, clear to the end of the line, change a character to uppercase or lowercase, or press the escape key to cancel everything you've done, should you err.

Also part of the *Program Writer* package are classic extended programming commands such as automatic line numbering, renumber, find, replace, copy, paste, or delete lines. These commands can be accessed by a few quick keystrokes; once you get the hang of it, you can fly. It's also possible to create a macro, which links a group of commands to a single keystroke. By using macros, you can do an extensive amount of editing in seconds. This makes *Program Writer* a must for programmers on the go.

—JOEY LATIMER

GAMES

AutoDuel

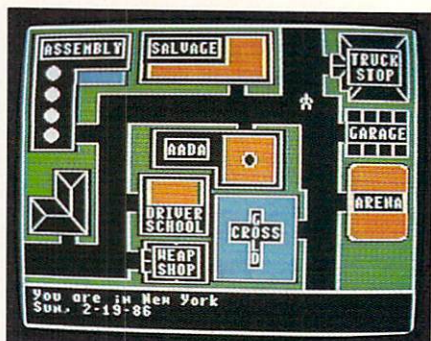
HARDWARE REQUIREMENTS: 64K Apple.
PUBLISHER: Origin Systems, distributed by Electronic Arts
PRICE: \$50

CRITIC'S SUGGESTED AGES: 10+

You're in an America of the future. The cities are armed camps, and the roads are treacherous, with outlaws everywhere you turn on the highways. The only way to drive is offensively, eliminating or outrunning your fellow travelers.

AutoDuel—based on the popular board game *Car Wars*, which got its start from the *Mad Max* movies—is state-of-the-art in strategy/arcade action. As the game progresses, it demands increasingly more sophisticated driving and shooting skills from computer road warriors. The play system ties in your fighting skills with making money. You earn it by performing courier jobs, by selling salvaged auto parts from opponents you eliminate on the roads of the eastern United States, or by winning one of the gladiatorial contests held regularly in the cities you visit.

As your fortunes increase, you can buy ever-more powerful "dreamboats"—from a subcompact with light armor and machine guns to a



top-of-the-line, supercharged, laser-armed pickup truck. Eventually, this joystick-controlled game lets you go to work for the F.B.I. in their pursuit of the game's arch-villain.

AutoDuel is excellent, a game filled with thrills, humor, and role-playing pleasures. This is one of the best so far this year.

Borrowed Time

HARDWARE REQUIREMENTS: Amiga, 64K Apple, Atari 520ST, C 64/128, IBM PC/PCjr, Macintosh.

PUBLISHER: Activision

PRICE: \$30-\$50

CRITIC'S SUGGESTED AGES: 12+



The city's a lonely place for a private eye, especially when you've got assorted torpedos out there waiting for the chance to air condition your skull. But if your job's solving crimes, the risks come with the territory.

In this text/graphic detective tale, your moniker's Sam Harlow. From the moment your tired tootsies first appear on your desk, you're in for more trouble than a cat in a dog pound. You've got seven cases open, and if you're good, I mean *real* good, you just might be able to solve 'em all before some slug from a .45 buys you the farm.

If you can solve all seven cases in 24 hours, you're the leading gumshoe everyone thinks you are. But one false step and you're deader than last week's meatloaf. Try talk-

ing to people, following leads all over town. Collect evidence, no matter how unimportant it might seem. And soon the pieces will fall together. You'll need smarts to solve the mystery, and there's plenty of action here, too, so move fast, keep your eyes open, and don't forget to use a map.

Under Fire!

HARDWARE REQUIREMENTS: Apple.

PUBLISHER: Avalon Hill

PRICE: \$60

CRITIC'S SUGGESTED AGES: 12+



With *Under Fire!*, a breakthrough war game construction set, you can build practically any type of World War II strategy and tactics game you want. This program combines an excellent mapmaker with a highly flexible troop unit designer. The mapmaker will simulate various terrain types, such as one- and two-story wood and stone buildings, hills, forests, rivers, road nets, and bridges. When recruiting troops, you can choose from American, German, or Russian soldiers for infantry, paratroops, or armor and transport.

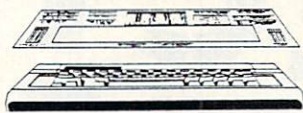
Then the war games begin, with either or both sides attacking or defending in an almost endless series of hypothetical or re-created engagements. Finally, the battles can be resolved using the game's innovative play system, which accounts for every detail, such as each bullet fired.

Playtesters found it easy to learn, simple to operate, and a challenge to play, but harsh criticism was leveled against the battle resolution system. While all the other modes were quick moving, the computer took ages to resolve each battle—to the point where some players quit rather than wait for the battles they had painstakingly created to be "fought."

Even considering that, *Under Fire!* is a superb gaming system, unique in the war-game genre.

—REVIEWS BY JAMES DELSON

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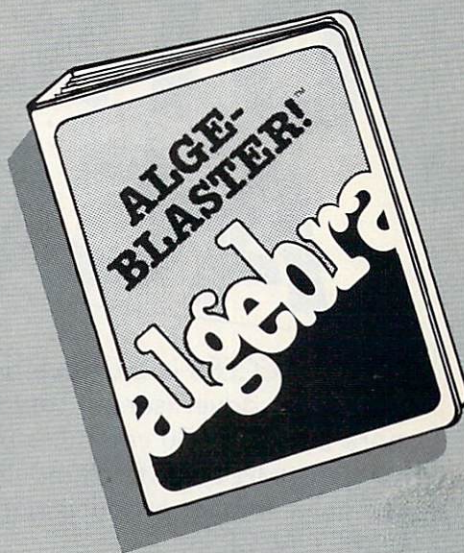
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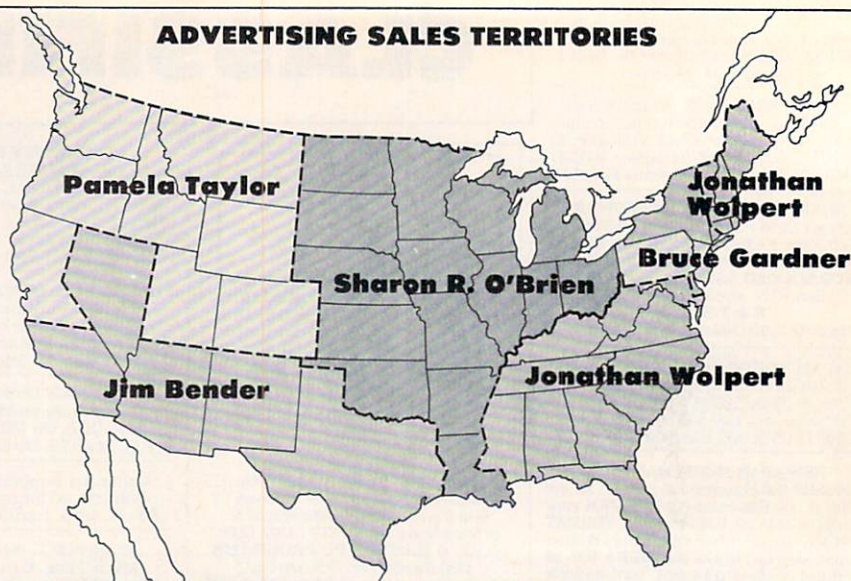
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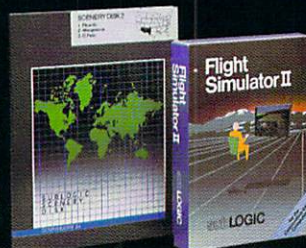
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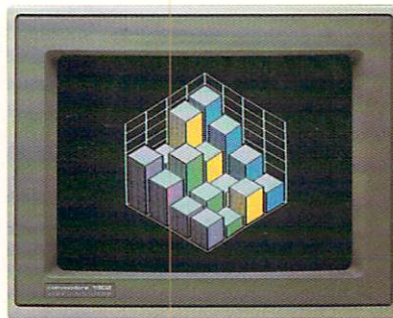
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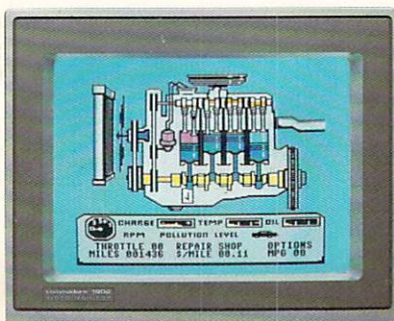
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